

HORIZON MENTHOL 100

5/90 Test marketed in Georgia - delivers 12 mg tar, 0.8 mg nicotine and 0.7 mg menthol. This product uses ethyl vanillin as the sidestream aroma compound.

JAMESTOWN KING SIZE [Jamestown 85]

6/70 85 mm cigarette - similar to Winston 85 possibly for trademark purposes.

Discontinued.

MAGNA LONG SIZE (BOX) [Magna 80 (Box)]

3/87 Distributed in ten cities - generic price - delivers 12 mg tar and 0.8 mg nicotine.

9/90 The level of expanded tobacco decreased (25 to 12%).

1/91 Changed from 50/50 wood pulp/flax to 95-100% wood pulp.

Discontinued.

MAGNA KING SIZE (BOX) [Magna 83 (Box)]

7/90 National distribution. This product delivers 18 mg tar and 1.2 mg nicotine - the filter length and rod length are 2 mm longer than the 80 mm product - the circumference of this product is 24.6 mm. The cigarette paper is wood pulp and flax fibers.

9/91 The level of expanded tobacco increased (12 to 21%) and expanded stem was added at a 4% level. Decrease in tobacco weight (0.76 to 0.66 g) and density (0.26 to 0.22 g/cc).

MAGNA LITES KING SIZE (BOX) [Magna Lites 83 (Box)]

7/90 National distribution - delivers 12 mg tar and 0.9 mg nicotine - the filter length is 8 mm longer and the rod length is 4 mm shorter than the 80 (Box) product. The circumference of this product is 24.6 mm - the cigarette paper is wood pulp and flax fibers.

9/91 The level of expanded tobacco increased (12 to 21%) and expanded stem was added to a 4% level. Decrease in tobacco weight (0.64 to 0.58 g) and density (0.24 to 0.21 g/cc).

MAGNA LITES LONG SIZE (BOX) [Magna Lites 80 (Box)]

5/89 Introduced nationally - this value entry product delivers 9 mg tar and 0.6 mg nicotine.

9/90 The level of expanded tobacco decreased (25 to 12%).

1/91 Changed from 50/50 wood pulp/flax to 95-100% wood pulp.

Discontinued.

MAGNA KING SIZE [Magna 85]

3/87 Distributed in ten cities - generic price - delivers 12 mg tar and 0.8 mg nicotine.

9/90 The level of expanded tobacco decreased (25 to 12%) resulting in an increase in tobacco weight (0.620 to 0.727 g) and rod density (0.199 to 0.234 g/cc).

1/91 Changed from 50/50 wood pulp/flax to 95-100% wood pulp.

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9/91 The level of expanded tobacco increased (12 to 21%) and expanded stem was added at a 4% level. Decrease in tobacco weight (0.72 to 0.69 g) and density (0.23 to 0.22 g/cc).

MAGNA LITES KING SIZE [Magna Lites 85]

3/87 Distributed in ten cities - generic price - delivers 9 mg tar and 0.6 mg nicotine.

11/89 Lower ventilation (22 to 17%) and a change in cigarette paper resulted in higher tar (10 to 11 mg) and nicotine (0.7 to 0.8 mg) deliveries. The cigarette paper is more porous and has a lower level of paper component. A lower total and filter RTD were noted.

9/90 The level of expanded tobacco decreased (16 to 12%).

1/91 Changed from 50/50 wood pulp/flax to 95-100% wood pulp.

9/91 The level of expanded tobacco increased (12 to 21%) and expanded stem was added at a 4% level. Decrease in tobacco weight (0.66 to 0.62 g) and decrease in density (0.23 to 0.22 g/cc).

MONARCH ULTRA LIGHTS KING SIZE

5/92 Introduced 85 mm - 5 mg tar and 0.6 mg nicotine - Monarch sells for \$.99 per pack.

MONARCH ULTRA LIGHTS 100

5/92 Introduced 100 mm - 5 mg tar and 0.6 mg nicotine - Monarch sells for \$.99 per pack.

MONARCH LIGHTS KING SIZE

5/92 Introduced 85 mm - 10 mg tar and 0.9 mg nicotine - Monarch sells for \$.99 per pack.

MONARCH LIGHTS 100

5/92 Introduced 100 mm - 10 mg tar and 0.9 mg nicotine - Monarch sells for \$.99 per pack.

MONARCH LIGHTS MENTHOL KING SIZE

5/92 Introduced 85 mm - 10 mg tar, 0.9 mg nicotine and 0.5 mg menthol in smoke - Monarch sells for \$.99 per pack.

MONARCH LIGHTS MENTHOL 100

5/92 Introduced 100 mm - 10 mg tar, 0.9 mg nicotine and 0.5 mg menthol in smoke - Monarch sells for \$.99 per pack.

MONARCH FULL FLAVOR KING SIZE

5/92 Introduced 85 mm - 14 mg tar and 1.1 mg nicotine - Monarch sells for \$.99 per pack.

MONARCH FULL FLAVOR 100

5/92 Introduced 100 mm - 16 mg tar and 1.2 mg nicotine - Monarch sells for \$.99 per pack.

MORE 120 (BOX)

9/74 Plain - Introduced - 120 mm cigarette with brown colored cigarette and tipping paper. This new cigarette is slimmer (21 mm circumference) and longer (119 mm) than any other cigarette on the market. Two versions introduced - 1 with 3 rows of parallel (mechanically) ventilation holes the length of the cigarette rod and 1 without ventilation holes.

9/79 Tar decrease (22 to 21 mg) by increase in filter ventilation (22 to 36%). A lower total RTD was observed.

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- 1/81 Tar (20.5 to 18.5 mg), nicotine (1.64 to 1.52 mg) and CO (23.2 to 20.4 mg) reduced - lower filler rod TPM (38.1 to 35.1 mg).
- 5/81 Tar (17.3 to 15.8 mg), nicotine (1.46 to 1.23 mg) and CO (20.4 to 19.3 mg) lowered - increase in filter length (30 to 35 mm) and tipping paper length (35 to 39 mm).
- 11/82 Tar (15 to 17.1 mg), nicotine (1.19 to 1.36 mg) and CO (21 to 22.8 mg) increased - decreased ventilation (37 to 28%).
- 7/89 Tobacco weight (0.771 to 0.735 g) and rod density (0.255 to 0.245 g/cc) decreased.
- 9/90 The level of expanded tobacco decreased (16 to 12%).
- 1/91 Reduced expanded tobacco (16 to 12%). Filter ventilation changed from mechanical to Hauni laser.

MORE MENTHOL 120 (BOX)

- 9/74 Menthol - Introduced - 120 mm cigarette with brown colored cigarette and tipping paper. This new cigarette is slimmer (21 mm circumference) and longer (119 mm) than any other cigarette on the market. Two versions introduced - one with 3 rows of parallel (mechanically) ventilation holes the length of the cigarette rod and one without ventilation holes.
- 9/79 Tar decrease (23 to 22 mg) by increase in filter ventilation (23 to 33%). A lower total RTD was observed.
- 1/81 Tar (21.2 to 18.8 mg), nicotine (1.75 to 1.53 mg) and CO (23.4 to 19.4 mg) reduced - lower filler rod TPM (38.1 to 35.1 mg).
- 6/81 Tar (18 to 16 mg), nicotine (1.5 to 1.3 mg) and CO (20 to 19 mg) lowered - increase filter length (30 to 35 mm) and tipping paper length (35 to 39 mm).
- 7/89 Tobacco weight (0.780 to 0.721 g) and rod density (0.259 to 0.239 g/cc) decreased.
- 9/90 The level of expanded tobacco decreased (16 to 12%).
- 1/91 Reduced expanded tobacco (16 to 12%). Filter ventilation changed from mechanical to Hauni laser.

MORE LIGHTS 100 (BOX)

- 6/81 Introduced - a beige colored slim cigarette - targeted for the female market - tar (8 mg) and nicotine (0.6 mg) - expanded tobacco (16%).
- 9/84 Color of cigarette paper changed to deep tan - design of package changed.
- 7/89 Tobacco weight (0.678 to 0.639 g) and rod density (0.246 to 0.232 g/cc) decreased.

MORE LIGHTS MENTHOL 100 (BOX)

- 6/81 Introduced - a beige colored slim cigarette - targeted for the female market - tar (8 mg) and nicotine (0.6 mg) - expanded tobacco (28%).
- 5/84 Filler menthol increased (2.6 to 3.4 mg) - smoke menthol increased (0.39 to 0.56 mm) - ventilation system changed from mechanical to Hauni laser perforation.

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9/84 Color of cigarette paper changed to deep tan - design of package changed. Decrease in expanded tobacco (28 to 17%) - increase in tobacco weight (0.603 to 0.684 g) - increase puff count (8.0 to 9.5).

12/89 Tobacco weight (0.678 to 0.638 g) and rod density (0.247 to 0.232 g/cc) decreased.

MORE LIGHTS 120

7/87 Test marketed - San Francisco and Los Angeles - delivers 12 mg tar and 0.9 mg nicotine - similar to More 120's.

MORE LIGHTS 120 MENTHOL

7/87 Test marketed - San Francisco and Los Angeles - delivers 12 mg tar, 0.9 mg nicotine and 0.5 mg smoke menthol - similar to More 120's.

MORE WHITE LIGHTS 120

1/89 Test marketed on East Coast - delivers 9 mg tar and 0.7 mg nicotine - uses white cigarette paper.

MORE WHITE LIGHTS MENTHOL 120

1/89 Test marketed on East Coast - delivers 11 mg tar, 0.7 mg nicotine and 0.5 mg smoke menthol - uses white cigarette paper.

MR. MENTHOL KING SIZE [Mr. Menthol 85]

2/70 85 mm mentholated cigarette with 20 mm CA filter. Single row of ventilation holes - Blend does not contain expanded tobacco.

Discontinued.

NOW LONG SIZE (BOX) [Now 80 (Box)]

4/80 Introduced a low tar (0.2 mg) and nicotine (0.03 mg) cigarette. Ultra low delivery achieved by high filter ventilation (85%) and low tobacco weight (82% expanded tobacco).

Discontinued.

NOW KING SIZE (BOX) [Now 85 (Box)]

12/75 Plain - test marketed in a flip-top box - Tar (2 mg) and nicotine (0.2 mg) deliveries - Accomplished primarily by high ventilation and blend composition - Blend contains 50% expanded tobacco and lowest filler weight of any 85 mm cigarette.

1/76 Test marketed in a crush-proof box - Tar (2 mg) and nicotine (0.2 mg) deliveries accomplished by high filter ventilation and blend composition - Blend contains 50% expanded tobacco and has a rod density of 0.170 g/cc.

12/76 Tar and nicotine data on pack changed to 1 mg and 0.1 mg, respectively. Lower tar achieved as result of increased filter ventilation.

11/77 Tar (1 mg) and nicotine (0.1 mg) data listed on pack replaced by statement "Ultra Low Tar." Increase in filler alkaloids noted.

6/81 Tar (2 to 0.6 mg), nicotine (0.2 to 0.06 mg) and CO (2 to <1.0 mg) lowered - increase filter ventilation (68 to 82%) and tipping paper (30 to 35 mm) - tar data on pack changed from 2 to 1 mg.

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9/83 Filter length increased (25 to 27 mm) - filter RTD increased (6.1 to 6.5 in. H₂O) - tobacco weight (0.524 to 0.505 g) and rod density (0.182 to 0.718 decreased Ventilation system changed from mechanical to laser perforation.

1/84 Tipping paper length decreased (35 to 31 mm).

NOW KING SIZE (SOFT PACK) [Now 85 (Soft Pack)]

11/77 Soft pack version marketed in Washington, D.C. Similar to hard box version of Now 85 cigarettes with the exception of a longer cigarette length. "Ultra Low Tar" specified on the package.

7/89 Tobacco weight (0.514 to 0.471 g) and rod density (0.181 to 0.167 g/cc) decreased.

1/91 Package changed from silver to brushed gold color.

NOW MENTHOL KING SIZE (BOX) [Now Menthol 85 (Box)]

12/75 Menthol - test marketed in a flip top box - Tar (2 mg) and nicotine (0.2 mg) deliveries - Accomplished primarily by high ventilation and blend composition - Blend contains 50% expanded tobacco and lowest filler weight of any 85 mm cigt.

1/76 Menthol - Test marketed in a crush-proof box - Tar (2 mg) and nicotine (0.2 mg) deliveries accomplished by a high filter ventilation and blend composition - Blend contains 50% expanded tobacco and has a rod density of 0.17 g/cc.

12/76 Tar and nicotine data on pack changed to 1 mg and 0.1 mg, respectively. Lower tar achieved as result of increased filter ventilation.

11/77 Tar (1 mg) and nicotine (0.1 mg) data listed on pack changed to 2 mg and 0.2 mg, respectively. Increase in filler alkaloids noted.

6/81 Tar (2 to 0.06 mg), nicotine (0.2 to 0.06 mg) and CO (2 to <1.0 mg) lowered - increase filter ventilation (68 to 82%) and tipping paper (30 to 35 mm) - tar data on pack changed from 2 to 1 mg.

11/83 Filter length increased (25 to 27 mm) - decreased tobacco weight (0.517 to 0.492 g). Ventilation system changed from mechanical perforation to laser perforation.

1/84 Tipping paper length decreased (35 to 31 mm).

Discontinued.

NOW MENTHOL KING SIZE (SOFT PACK) [Now Menthol 85 (Soft Pack)]

11/77 Soft pack version marketed in Washington, D.C. Similar to hard box version of Now Menthol 85 cigarettes with the exception of a longer cigarette length. "Ultra Low Tar" specified on the package.

12/89 Tobacco weight (0.487 to 0.468 g) and rod density (0.173 to 0.165 g/cc) decreased.

NOW 100

3/80 Test marketed - Tar (2 mg) and nicotine (0.2 mg) - Low delivery achieved by 75% filter ventilation.

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NOW 100

- 3/80 Test marketed - Tar (2 mg) and nicotine (0.2 mg) - Low delivery achieved by 75% filter ventilation.
- 2/81 Expanded tobacco (25 to 50%) increased - reconstituted tobacco (22 to 15%) decreased - lower tobacco weight (0.805 to 0.664 g) and rod density (0.229 to 0.185 g/cc).
- 5/83 Ventilation system changed from three to two rows laser perforation.
- 11/83 Lower puff count due to less porous paper (14 to 23 sec.) with high level of paper component (0.5 to 1.6%). Increased filter RTD (3.7 to 4.7 in. H₂O) and filter efficiency (58 to 65%) due to change in fiber denier (3.5/Y to 2.6/Y).
- 5/84 Tar (2.8 to 3.6 mg), nicotine (0.28 to 0.34 mg) and CO (2.9 to 4.3 mg) increased - decrease in ventilation (74 to 66%) - filter length (27 to 31 mm), filter weight (0.18 to 0.20 g), increased - tobacco weight decreased (0.659 to 0.614 g).
- 11/87 Tar, nicotine and CO decreased as a result of higher ventilation.
- 7/89 Tobacco weight (0.621 to 0.576 g) and rod density (0.185 to 0.170 g/cc) decreased.
- 1/91 Package changed from silver to brushed gold color.

NOW 100 (BOX)

- 3/81 Introduced - slim cigarette (22.5 mm), tar (0.00 mg), filter ventilation (95%), and filter RTD (9.5) - blend 100% expanded tobacco.

NOW MENTHOL 100

- 3/80 Test marketed - Tar (2 mg) and nicotine (0.2 mg) - Low delivery achieved by 75% filter ventilation.
- 2/81 Expanded tobacco (25 to 50%) increased - reconstituted tobacco (22 to 15%) decreased - lower tobacco weight (0.796 to 0.656 g) and rod density (0.229 to 0.185 g/cc).
- 5/82 Tar (2.8 to 1.4 mg) and nicotine (0.25 to 0.20 mg) decreased - ventilation (76 to 82%) increased - menthol (0.34 to 0.29 mg) decreased.
- 9/82 Tar (1.5 to 2.3 mg), nicotine (0.21 to 0.30 mg) and CO (0.9 to 1.8 mg) increased - decreased ventilation (82 to 76%).
- 5/83 Ventilation system changed from three to two rows laser perforation.
- 1/84 CO increased (1.6 to 2.5 mg) due to a change to a less porous paper (15 to 25 sec.) with higher level of paper component (0.4 to 1.9%) - Fiber denier decreased (3.2/Y to 2.4/Y) resulting in increased filter RTD (3.8 to 4.6 in. H₂O) and filter efficiency (54 to 64%).
- 5/84 Tar (2.5 to 3.4 mg) and CO (2.9 to 3.6 mg) deliveries increased - decreased ventilation (77 to 71%). Filter length increased (27 to 31 mm) - decreased tobacco weight (0.662 to 0.620 g), increased total RTD (3.4 to 4.1 in. H₂O) filter RTD (4.6 to 5.4 in. H₂O) and filter weight (0.19 to 0.21 g).
- 12/89 Tobacco weight (0.584 to 0.572 g) and rod density (0.173 to 0.168 g/cc) decreased.

PRINCE ALBERT KING SIZE [Prince Albert 85]

8/65 Introduced - king size with a 20 mm CA filter - "pipe tobacco" blend.

Discontinued.

REAL KING SIZE [Real 85]

6/77 Introduced - low tar (10 mg) and nicotine (0.8 mg) correlating with a 25 mm high efficiency CA filter with ventilation (27%). Blend contains similar levels of reconstituted material and Freon expanded tobacco typical of other Reynolds' products. Tar (9 mg) listed on pack along with a claim "Nothing Artificial Added."

5/80 Lower tar (10 to 8 mg) and nicotine (0.9 to 0.7 mg) resulting from an increase in filter ventilation (25 to 38%).

Discontinued.

REAL MENTHOL KING SIZE [Real Menthol 85]

6/77 Introduced - low tar (10 mg) and nicotine (0.8 mg) correlating with a 25 mm high efficiency CA filter with ventilation (34%). Blend contains similar levels of reconstituted material and Freon expanded tobacco typical of other Reynolds' products. Tar (9 mg) listed on pack along with a claim "Nothing Artificial Added."

2/79 Filler and smoke menthol levels increased.

Discontinued.

RITZ 100 (BOX)

1/85 Introduced - flip-top box has Yves Saint Laurent designer logo - cigarettes will be sold at a premium price - delivers 11 mg tar and 0.8 mg nicotine - typical Reynolds blend.

4/86 National distribution.

12/89 Tobacco weight (0.758 to 0.694 g) and rod density (0.244 to 0.222 g/cc) decreased.

6/91 Discontinued.

RITZ MENTHOL 100 (BOX)

1/85 Introduced - flip-top box has Yves Saint Laurent designer logo - cigarettes will be sold at a premium price - delivers 11 mg tar, 0.8 mg nicotine and 0.7 mg menthol.

4/86 National distribution.

12/89 Tobacco weight (0.772 to 0.734 g) and rod density (0.248 to 0.234 g/cc) decreased.

6/91 Discontinued.

SALEM LONG SIZE (BOX) [Salem 80 (Box)]

3/74 Introduced in flip-top box - Similar to Salem 85.

11/75 Lower filler alkaloids (0.1%) correlating with a lower nicotine delivery.

11/76 Tipping paper length increased (23 to 24 mm). Decrease in tar delivery and puff count noted.

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- 7/77 Decrease in tar (19 to 15 mg) and nicotine (1.2 to 1.1 mg) deliveries corresponding to the use of a more porous cigarette paper and a more efficient filter.
- 9/85 Re-introduced in test market - uses cork tipping paper - delivers 16 mg tar, 1.1 mg nicotine, and 0.5 mg smoke menthol.
- 8/86 Discontinued.
- 5/90 Re-introduced in Chicago, Illinois - delivers 17 mg tar, 1.1 mg nicotine and 0.5 mg smoke menthol.

SALEM KING SIZE [Salem 85]

- 10/60 Nicotine delivery and filler alkaloids decreased.
- 7/63 Nicotine delivery and filler alkaloids decreased.
- 7/64 Nicotine delivery and filler alkaloids increased.
- 2/65 Nicotine delivery and filler alkaloids increased.
- 3/65 TPM decreased 1.5 mg by changing paper additive.
- 10/66 Filter length increased, 17 to 20 mm.
- 11/69 Expanded tobacco (4%) noted in blend of some cigarettes.
- 3/70 Tar (1 mg) and tobacco weight decreased by addition of expanded tobacco.
- 2/73 Filter length (20 to 21 mm) and tipping paper length (24 to 25 mm) increased - No change in smoke deliveries.
- 3/73 Tar delivery (1 mg) decreased - Cigarette length decreased - puff count lower.
- 11/75 Lower filler alkaloids (0.1%) correlating with a lower nicotine delivery.
- 2/76 Cigarette length (84.3 to 84.0 mm) decreased.
- 5/77 Decrease in tar (18 to 16 mg) and nicotine (1.2 to 1.0 mg) correlating with a change to a more porous cigarette paper.
- 8/82 Tar (13.7 to 15.2 mg), nicotine (1.04 to 1.19 mg) and CO (13.6 to 15.4 mg) increased - change to a less porous paper (18 to 20 sec.) and a less efficient filter (45 to 40%) - higher filler menthol (1.4 to 2.1 mg) resulted in higher menthol in smoke (0.42 to 0.55 mg). Tobacco wt. (0.783 to 0.745 g) and rod density (0.252 to 0.242 g/cc) decreased - increased paper component (0.6 to 1.3 %).
- 3/83 Test marketed pack containing 12 cigarettes per pack.
- 5/83 Ventilation decreased (18% to none) resulting in higher tar (15 to 16 mg), nicotine (1.2 to 1.3 mg), CO (16 to 18 mg), and menthol (0.57 to 0.68 mg) deliveries.
- 11/83 Paper component level increased (0.6 to 1.5%).

- 11/87 New package graphics test marketed.
- 7/89 Tobacco weight (0.737 to 0.700 g) and rod density (0.235 to 0.224 g/cc) decreased.
- 9/90 The level of expanded tobacco decreased (16 to 12%).
- 3/91 Changed from 50/50 wood pulp/flax to 95-100% wood pulp.
- 1/92 Overwrap changed from polypropylene to FlavorSeal™, a metalized polyester.

SALEM EXTRA KING SIZE [Salem Extra 85]

- 10/74 Introduced - Delivers more menthol than current Salem 85 - cork tipping.

Discontinued.

SALEM GOLD KING SIZE [Salem Gold 85]

- 3/90 Introduced Salem Gold 85 nationally - delivers 17 mg tar, 1.2 mg nicotine and 0.2 mg smoke menthol.

Discontinued.

SALEM LIGHTS KING SIZE [Salem Lights 85]

- 11/75 Menthol - Test marketed - Tar (12 mg) and nicotine (0.8 mg) deliveries - Lower in tar than Salem 85 because of more porous cigarette paper, filter ventilation and an increased filter and tipping paper length.
- 4/76 Tar delivery (1 mg) decreased by increase in filter ventilation.
- 10/80 Tar (10 to 8 mg), nicotine (0.8 to 0.6 mg), and CO (13 to 12 mg) decreased resulting from an increase in both filter ventilation (16 to 28%) and tipping paper length (30 to 32 mm).
- 10/82 Tar (8.6 to 8.2 mg) and CO (10.7 to 8.8 mg) decreased - increased filter ventilation (30 to 42%). Paper porosity decreased (17 to 26 sec.) - paper component increased (0.7 to 1.6%). Tobacco weight (0.714 to 0.689 g) decreased - increased amount of expanded tobacco. (13 to 17%).
- 3/83 Test marketed pack containing 12 cigarettes per pack.
- 5/83 Tar (8 to 9 mg), nicotine (0.7 to 0.8 mg), CO (9 to 11 mg), and menthol (0.31 to 0.50 mg) deliveries increased due to decreased ventilation. Ventilation system changed from two to one row of mechanical perforation - decreased paper component - increased cigarette paper porosity.
- 9/83 Filter length increased (25 to 27 mm), rod density increased (0.237 to 0.244 g/cc).
- 3/84 Tar (9 to 10 mg), nicotine (0.77 to 0.82 mg) and puff count (7.4 to 7.8) increased - tipping paper length decreased (32 to 31 mm) - filler menthol (2.6 to 2.9 mg) and smoke menthol (0.48 to 0.52 mg) increased.
- 11/87 New package graphics test marketed.
- 7/89 Tobacco weight (0.664 to 0.636 g) and rod density (0.234 to 0.224 g/cc) decreased.
- 9/90 The level of expanded tobacco decreased (16 to 12%).

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- 1/91 Reduced expanded tobacco (16 to 12%).
- 3/91 Changed from 50/50 wood pulp/flax to 95-100% wood pulp.
- 1/92 Overwrap changed from polypropylene to FlavorSeal™, a metalized polyester.

SALEM ULTRA LIGHTS KING SIZE [Salem Ultra Lights 85]

- 3/82 Name changed to Salem Ultra Lights.
- 12/82 Tar (4.8 to 5.5 mg), nicotine (0.42 to 0.47 mg) and CO (4.7 to 6.7 mg) increased - decreased ventilation (56 to 52%) and less porous paper (18 to 26 sec.) - increased paper component (0.8 to 1.7%). Filter efficiency (58 to 63%) increased - increased filter RTD (99 to 130 mm of H₂O) - Menthol in smoke (0.50 to 0.42 mg) decreased - lower menthol in filler and filter.
- 11/83 Filter (25 to 27 mm) and tipping paper (30 to 31 mm) lengths increased. Ventilation system changed from mechanical to Hauni laser.
- 11/87 New package graphics test marketed.
- 1/92 Overwrap changed from polypropylene to FlavorSeal™, a metalized polyester.

SALEM 100

- 6/67 Test marketed - 100 mm long - 20 mm CA filter.
- 12/67 Tar (4 mg) and nicotine (0.2 mg) reduced by filter length (20 to 25 mm) and tipping paper (24 to 30 mm).
- 10/70 Tar (2 mg) and nicotine (0.1 mg) decreased by addition of expanded tobacco (6%) - Tobacco weight lower.
- 4/71 Reconstituted tobacco content of blend increased (22 to 26%).
- 1/73 Filter length (25 to 27 mm) and tipping paper length (30 to 31 mm) increased - No change in smoke deliveries.
- 11/75 Lower filler alkaloids (0.1%) correlating with a lower nicotine delivery.
- 5/77 Name changed from Salem Premium Length 100 to Salem 100.
- 11/77 Cigarette length increased corresponding to 0.4 mm increase in filter length.
- 1/81 Tar (15.3 to 13.9 mg) and CO (16.4 to 13.8 mg) decreased - increase in filter ventilation (17 to 28%).
- 10/82 Tar (14.6 to 17.0 mg), nicotine (1.17 to 1.27 mg) and CO (14.3 to 16.7 mg) increased - change to less porous paper (16 to 24 sec.) and decreased ventilation (25 to 19%). Menthol in smoke (0.43 to 0.69 mg) increased - higher menthol levels in filler and filter.
- 3/83 Test marketed pack with 12 cigarettes per pack.
- 5/84 CO decreased (16 to 14 mg) - change to more porous paper (25 to 17 sec.) with lower level of paper component (1.5 to 0.7%).

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- 11/85 Change to a less porous cigarette paper (14 to 20 sec.) and increased level of paper component (0.8 to 1.6%) - longer tipping paper (31 to 32 mm).
- 11/87 New package graphics test marketed.
- 1/88 Increased tar delivery correlated with lower level of paper component.
- 7/89 Tobacco weight (0.859 to 0.829 g) and rod density (0.241 to 0.232 g/cc) decreased.
- 9/90 The level of expanded tobacco decreased (16 to 9%).
- 1/92 Overwrap changed from polypropylene to FlavorSeal™, a metalized polyester.

SALEM LIGHTS 100

- 10/76 Introduced - appears to be low delivery (11 mg tar and 0.8 mg nicotine) version of Salem 100 cigarettes. Low delivery achieved by filter ventilation.
- 5/77 Name changed from Salem Long Lights 100 to Salem Light 100.
- 11/77 Cigarette length increased corresponding to 0.4 mm increase in filter length.
- 2/81 Tar (10.3 to 9.8 mg) reduced - lower filter ventilation (33 to 29%) - increase in tipping paper length (31 to 35 mm).
- 6/84 Filter length increased (27 to 31 mm) - tobacco weight decreased (0.852 to 0.811 g).
- 7/84 Filter length increased (27 to 31 mm), tobacco weight decreased (0.847 to 0.803 g), smoke menthol lower (0.53 to 0.45 mg) correlated with lower filler menthol content (3.6 to 2.9 mg).
- 11/87 New package graphics test marketed.
- 7/89 Tobacco weight (0.774 to 0.750 g) and rod density (0.230 to 0.223 g/cc) decreased.
- 9/90 The level of expanded tobacco decreased (16 to 12%).
- 3/91 Changed from 50/50 wood pulp/flax to 95-100% wood pulp.
- 7/91 The level of expanded tobacco decreased from 12 to 7%.
- 1/92 Overwrap changed from polypropylene to FlavorSeal™, a metalized polyester.

SALEM LIGHTS 100 "CUSTOM CASE"

- 3/87 Test marketed in an eight sided package in Richmond, Fort Wayne, Milwaukee and Houston. Higher smoke deliveries on this new brand - a result of lower ventilation and a less efficient filter - smaller circumference, lower tobacco weight and shorter cigarette length were also noted.
- 1/92 Overwrap changed from polypropylene to FlavorSeal™, a metalized polyester.

SALEM SLIM LIGHTS 100 (BOX)

- 12/81 Introduced - nationally - delivers 7.6 mg tar and 0.61 mg nicotine. The cigarette circumference is 22.7 mm.

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- 6/82 Tar data changed on pack (9 to 8 mg) to comply with FTC Report.
- 11/87 New package graphics test marketed.
- 9/90 The level of expanded tobacco decreased (20 to 16%).
- 3/91 Changed from 50/50 wood pulp/flax to 95-100% wood pulp.
- 1/92 Overwrap changed from polypropylene to FlavorSeal™, a metalized polyester.

SALEM ULTRA 100

- 3/82 Name change to Salem Ultra Lights 100.
- 1/92 Overwrap changed from polypropylene to FlavorSeal™, a metalized polyester.

SALEM ULTRA LIGHTS 100

- 12/82 Tar (4.6 to 6.0 mg), nicotine (0.46 to 0.54 mg) and CO (6.0 to 7.9 mg) increased - change to a less porous paper (17 to 24 sec.) - increased paper component (0.8 to 1.5%). Tobacco weight (0.829 to 0.840 g) and rod density (0.236 to 0.241 g/cc) increased - decreased amount of expanded tobacco (28 to 16%) - Menthol in smoke (0.37 to 0.47 mg) increased - total and filter RTD increased.
- 5/84 Tar (5.3 to 6.1 mg) and CO (6.2 to 7.2 mg) increased - decreased ventilation (60 to 56%). Increased filter length (27 to 31 mm) and filter weight (0.20 to 0.22 g) - decreased tobacco weight (0.831 to 0.789 g). Ventilation system changed from mechanical to Hauni laser.
- 11/74 New package graphics test marketed.
- 12/89 Tobacco weight (0.789 to 0.769 g) and rod density (0.234 to 0.228 g/cc) decreased.
- 9/90 The level of expanded tobacco decreased (16 to 12%).
- 3/91 Changed from 50/50 wood pulp/flax to 95-100% wood pulp.
- 1/92 Overwrap changed from polypropylene to FlavorSeal™, a metalized polyester.

STERLING KING SIZE

- 11/91 National distribution - 14 mg tar, 1.0 mg nicotine with a 21 mm CA filter, white tipping paper, and 8% ventilation; blend contains 36% reconstituted tobacco and 22% expanded tobacco.

STERLING MENTHOL KING SIZE

- 11/91 National distribution - 14 mg tar, 1.0 mg nicotine, 0.5 mg smoke menthol with a 21 mm CA filter, white tipping paper, and 5% ventilation; blend contains 36% reconstituted tobacco and 22% expanded tobacco.

STERLING LIGHTS KING SIZE

- 11/91 National distribution - 14 mg tar, 1.0 mg nicotine, 0.8 mg smoke menthol with a 27 mm CA filter, white tipping paper, and 22% ventilation; blend contains 36% reconstituted tobacco and 22% expanded tobacco.

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STERLING 100

- 11/90 Nationally distributed - \$3.00 coupon on carton; delivers 16 mg tar and 1.1 mg nicotine. Has wood pulp paper.
- 9/91 The level of expanded tobacco increased (8 to 21%) and expanded stem was added at a 4% level. Decrease in tobacco weight (0.87 to 0.78 g) and density (0.24 to 0.22 g/cc).
- 11/91 Ventilation and citrate no longer present. Longer filter (27 to 31 mm), shorter rod length and lower tobacco weight (0.78 to 0.73 g). Slight changes in packaging.

STERLING MENTHOL 100

- 11/90 Nationally distributed - \$3.00 coupon on carton; delivers 18 mg tar, 1.3 mg nicotine and 0.6 mg smoke menthol. Has flax paper.
- 11/91 Ventilation is no longer present. Longer filter (27 to 31 mm), lower tobacco weight (0.81 to 0.73 g) and density (0.23 to 0.22 g/cc). The level of expanded tobacco increased (8 to 21%) and expanded stem was added at a 4% level. Lower tar delivery (16 to 14 mg). Slight changes in packaging.
- 5/92 Citrate was removed resulting in higher tar (14.0 to 16.8 mg), nicotine (1.01 to 1.20 mg), CO (15.2 to 19.1 mg) and filter rod TPM (31.2 to 34.0 mg). The cigarette currently contains phosphorus (0.1%).

STERLING LIGHTS 100

- 11/90 Nationally distributed - \$3.00 coupon on carton; delivers 10 mg tar and 0.8 mg nicotine. Has flax paper.
- 9/91 The level of expanded tobacco increased (8 to 21%) and expanded stem was added at a 4% level. Decrease in tobacco weight (0.82 to 0.74 g) and density (0.24 to 0.22 g/cc).
- 11/91 Filter change resulted in higher tar (9 to 11 mg), slight change in packaging.

STERLING LIGHTS MENTHOL 100

- 11/90 Nationally distributed - \$3.00 coupon on carton; delivers 10 mg tar, 0.8 mg nicotine and 0.4 mg smoke menthol. Has wood pulp paper.
- 9/91 The level of expanded tobacco increased (8 to 21%) and expanded stem was added at a 4% level. Decrease in tobacco weight (0.83 to 0.77 g) and density (0.25 to 0.23 g/cc).
- 11/91 Filter change resulted in higher tar (9 to 10 mg); slight changes in packaging.

STERLING SLIM LIGHTS 100 (BOX)

- 11/91 National distribution - 8 mg tar, 0.7 mg nicotine with a 31 mm CA filter, white tipping paper and 34% ventilation; blend contains 36% reconstituted tobacco, 4% expanded stems, and 22% expanded tobacco.

STERLING SLIM LIGHTS MENTHOL 100 (BOX)

- 11/91 National distribution - 8 mg tar, 0.7 mg nicotine, 0.5 mg smoke menthol with a 31 mm CA filter, white tipping paper and 36% ventilation; blend contains 36% reconstituted tobacco and 22% expanded tobacco.

STERLING ULTRA LIGHTS 100

11/91 National distribution - 4 mg tar, 0.5 mg nicotine with a 31 mm CA filter, white tipping paper and 56% ventilation; blend contains 36% reconstituted tobacco and 22% expanded tobacco.

STERLING ULTRA LIGHTS MENTHOL 100

11/91 National distribution - 4 mg tar, 0.5 mg nicotine, 0.4 mg smoke menthol, with a 31 mm CA filter, white tipping paper and 56% ventilation; blend contains 36% reconstituted tobacco and 22% expanded tobacco.

STERLING SPECIAL BLEND KING SIZE (SOFT PACK)

[Sterling Special Blend 85 (Soft Pack)]

5/85 Introduced in black soft pack - similar in design to Sterling Special Blend (Box) - delivers 9 mg tar and 0.6 mg nicotine.

1/87 Discontinued.

STERLING SPECIAL BLEND 94 (BOX)

1/84 National distribution - delivers 12 mg tar and 0.9 mg nicotine - packed in black pack - 94 mm cigarette length.

1/87 Discontinued.

STERLING SPECIAL BLEND MENTHOL 94 (BOX)

1/84 National distribution - delivers 12 mg tar and 0.9 mg nicotine - packed in black pack - 94 mm cigarette length.

1/87 Discontinued.

TEMPO KING SIZE [Tempo 85]

4/64 Test marketed - dual carbon filter king size soft pack - fused carbon inner plug - high gas phase activity.

1/65 Polyethylene pellets added to charcoal filter - decrease in gas phase activity - blend change indicated by an increase in filler alkaloids and decrease in reducing sugars.

4/65 Nicotine delivery and filler alkaloids increased.

2/66 Gas phase activity of filter decreased.

12/66 TPM (5 mg) and nicotine (0.5 mg) decreased as result of changes in blend, cigarette paper, and filter.

3/67 Reconstituted tobacco content increased (17 to 23%).

5/68 Tar (4 mg) and nicotine (0.2 mg) reduced by change in filter length (20 to 25 mm) and in tipping paper (24 to 30 mm).

10/68 Tar (2 mg) reduced as a result of introduction of Hauni-type ventilation (27%) - A higher gas phase smoke index and lower total and filter RTD were noted.

7/69 Tar (2 mg) and nicotine (0.1 mg) increased by reduction in the amount of filter ventilation.

- 7/70 Tar (1 mg) and nicotine (0.1 mg) reduced by an increase in filter ventilation - Reduction in total and filter RTD was noted.
- 8/70 Package overwrap changed from cellophane to polypropylene.
- 10/71 Expanded tobacco observed in blend (3%) - Paper porosity changed (12 to 8 sec.)- Tar increased (1 mg).
- 3/72 Expanded tobacco increased (4 to 8%). Lower tobacco weight and rod density noted - Cigarette paper porosity changed (17 to 12 sec.).
- 2/76 Tar (5 mg) and nicotine (0.3 mg) reduced by increased filter efficiency and filter ventilation - Fiber denier of outer filter changed from 3.2 to 1.9 - Expanded tobacco increased from 7 to 11%.

Discontinued.

UPTOWN 80 MENTHOL (BOX)

- 1/90 Introduced and then withdrawn from Philadelphia test market. Intentionally packaged upside down in a black and gold pack - delivers 17 mg tar, 1.2 mg nicotine and 0.6 mg smoke menthol.

UPTOWN KING SIZE MENTHOL [Uptown 85 Menthol]

- 1/90 Introduced and then withdrawn from Philadelphia test market. Intentionally packaged upside down in a black and gold pack - delivers 17 mg tar, 1.2 mg nicotine and 0.6 mg smoke menthol.

VANTAGE KING SIZE [Vantage 85]

- 7/70 A new low tar (11 mg) and nicotine (0.9 mg) cigarette with a new 25 mm geometrically shaped cellulose acetate filter - High alkaloids content and blend contains 8% expanded tobacco - Tar (11 mg) and nicotine (0.9 mg) listed on pack.
- 3/79 Filter shape of cigarettes modified and is similar to that of Vantage 100. A 25% reduction in filter weight resulted from this change in filter shape.
- 5/79 Incorporation of filter ventilation (19%) resulted in lower tar (10 to 9 mg) and nicotine (0.9 to 0.8 mg) deliveries.
- 8/79 Tar (9 to 10 mg) increased resulting from the elimination of filter ventilation. Vantage 85 cigarettes manufactured during April, May and June, 1979, had filter ventilation.
- 3/80 Incorporation of filter ventilation (16%) resulted in lower tar (10 to 9 mg).
- 3/83 Test marketed pack containing 12 cigarettes per pack.
- 3/86 Test marketed new package design in Washington State and Oklahoma. The "bulls-eye" was replaced by a band of red, gold and blue stripes.
- 11/86 New package design in national distribution.
- 9/87 Tar, nicotine and CO deliveries increased as a result of lower ventilation.
- 5/89 Ventilation increased (10 to 28%) resulting in lower tar (10 to 8 mg) and CO (13 to 12 mg) deliveries and a lower total RTD (146 to 136 mm of H₂O). Lower nicotine delivery (0.7 to 0.6 mg) correlated with lower total alkaloids (2.0 to 1.8%) - type of perforation changed from ESP to Hauni Laser.

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- 7/89 Increased level of expanded tobacco (16 to 20%) resulted in a lower tobacco weight (0.677 to 0.657 g) and rod density (0.238 to 0.224 g/cc).
- 9/90 The level of expanded tobacco decreased (20 to 16%).
- 7/91 The level of expanded tobacco decreased (16 to 12%). Ventilation increased (28 to 42%) resulting in lower RTD (136 to 115 mm of H₂O). Less permeable paper (26 to 21 ml/cm² x min.). No changes in smoke deliveries.

VANTAGE MENTHOL KING SIZE [Vantage Menthol 85]

- 4/71 Similar to the Vantage plain except for menthol.
- 10/73 Filter design changed to circular openings at each end and constricted in the middle.
- 7/74 Menthol in smoke delivery decreased resulting from lower filler menthol content.
- 2/81 Tar (9.8 to 8.6 mg), nicotine (0.77 to 0.69 mg) and CO (15.2 to 12.6 mg) lowered - introduction of filter ventilation (14%) with one row of MP holes. Tar data listed on pack changed (11 mg to 9 mg).
- 1/85 Tar (9.4 to 7.9 mg) and CO (12.2 to 8.8 mg) deliveries decreased resulting from increased ventilation (16 to 40%) fiber denier and shape (1.8/R to 3.3/Y) changed - correlated with lower filtration efficiency (63 to 54%) - a less porous cigarette paper (16 to 20 sec.) with increased paper component (0.9 to 1.4%) was noted.
- 11/86 Package with multicolored stripes replaces "bull's-eye" package.
- 1/87 Filter changed to a tow-in-tow filter - higher smoke deliveries correlated with this change - higher smoke menthol delivery correlated with increased filter menthol.
- 12/89 Tobacco weight (0.714 to 0.684 g) and rod density (0.244 to 0.232 g/cc) decreased.
- 9/90 The level of expanded tobacco decreased (16 to 12%).
- 1/91 Perforation changed from electrostatic to one row of Hauni laser.
- 1/92 Increased filter ventilation (28 to 42%) and paper permeability (24 to 39 ml/cm² x min.); lower paper citrate (1.6 to 1.1%) and tar (10 to 8 mg).

VANTAGE 100

- 1/77 Low tar (11 mg) and nicotine (0.8 mg) cigarette characterized by a high efficiency filter containing 18% ventilation. A modified version of the Filtrona filter used on Vantage 85 cigarettes. Tar (11 mg) and nicotine (0.9 mg) listed on pack.
- 4/77 Name changed from Vantage Long 100 to Vantage 100.
- 11/77 Cigarette length increased corresponding to 0.4 mm increase in filter.
- 2/81 Tar (10.0 to 7.5 mg), nicotine (0.80 to 0.67 mg) and CO (15.1 to 11.9 mg) lowered - increase in filter ventilation (18 to 30%). Tar data listed on pack changed (12 to 9 mg).

- 8/81 Increase in tar (7.6 to 9.0 mg) and CO (11.7 to 13.0 mg) as result of a change in paper porosity (13 to 17 sec.).
- 5/83 Total and filter RTD increased and filter efficiency decreased due to change in fiber denier and shape (1.7/R to 2.6/Y).
- 3/86 Test marketed new package design in Washington State and Oklahoma. The "bull's-eye" was replaced by red, blue and gold bands.
- 11/86 New package design in national distribution.
- 3/89 Tobacco weight (0.825 to 0.781 g) and rod density (0.231 to 0.219 g/cc) lowered - no changes in smoke deliveries.
- 9/90 The level of expanded tobacco decreased (20 to 16%).
- 3/91 Lower expanded tobacco (16 to 12%), increased tobacco weight (0.77 to 0.84 g), rod density (0.22 to 0.24 g/cc), filler rod TPM (27.7 to 31.8 mg/cigt.), ventilation increased (35 to 51%), decreased total RTD (135 to 117 mm of H₂O), less permeable paper (37 to 23 ml/cm² x min.), lower citrate (0.9 to 0.5%), increased puff count (9.2 to 11.1 puffs/cigt.).
- 3/91 Changed from 50/50 wood pulp/flax to 95-100% wood pulp.

VANTAGE EXCEL 100

- 1/89 Test marketed in Michigan, Arkansas and Louisiana - cigarette paper uses magnesium hydroxide - the blend contains 77% expanded tobacco - advertising claims there is "less lit end smoke" - cigarette delivers 9 mg tar and 0.7 mg nicotine.
- 12/89 Discontinued

VANTAGE MENTHOL 100

- 10/82 Introduced - Tar (10 mg) and nicotine (0.8 mg) - filter configuration different from Vantage 100 resulting in higher total and filter RTD.
- 9/84 Filter length increased (27 to 31 mm) - tobacco weight decreased (0.839 to 0.792 g). Tipping paper length increased (34 to 35 mm). Lower nicotine (0.82 to 0.66 mg) and lower total alkaloid (1.95 to 1.78%) content observed. Ventilation system changed from mechanical to Hauni laser perforation.
- 11/86 Package with multicolored stripes replaced "bull's-eye" package.
- 3/87 Filter changed to a tow-in-tow filter - higher smoke deliveries correlated with this change - higher smoke menthol delivery correlated with increased filler menthol.
- 7/89 Tobacco weight (0.802 to 0.754 g) and rod density (0.237 to 0.224 g/cc) decreased.
- 9/90 The level of expanded tobacco decreased (20 to 16%).

VANTAGE ULTRA LIGHTS KING SIZE [Vantage Ultra Lights 85]

- 6/79 Test marketed - New cigarette delivers 6 mg tar and 0.7 mg nicotine. 25 mm CA filter and 32% filter ventilation. This new Vantage Ultra Lights 85 cigarette has a higher filler alkaloid content than the regular Vantage 85 cigarettes.

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- 5/81 Filter changed to CA - expanded tobacco (28 to 17%), tobacco weight (0.630 to 0.697 g), filter ventilation (35 to 55%), tar (6.3 to 5.1 mg) and CO (9.4 to 5.5 mg) decreased.
- 7/82 CO (5.0 to 6.8 mg) increased - change to less porous paper (16 to 26 sec.) - Increased paper component, puff count decreased. Tobacco weight (0.698 to 0.616 g) decreased - amount of expanded tobacco (17 to 20%) increased.
- 10/82 Filter length increased (25 to 26 mm).
- 5/83 Test marketed Filtrona-type filter.
- 11/83 Filter (26 to 27 mm) and tipping paper (30 to 31 mm) lengths increased - Ventilation system changed from mechanical to Hauni laser perforation.
- 11/86 Package with multicolored stripes replaces "bull's eye" package.
- 12/89 Tobacco weight (0.610 to 0.592 g) and rod density (0.215 to 0.208 g/cc) decreased.
- 9/90 The level of expanded tobacco decreased (25 to 21%).
- 8/91 The level of expanded tobacco decreased (21 to 16%). Increased tobacco weight (0.71 to 0.76 g) and density (0.21 to 0.23 g/cc).
- 3/92 Packaging change resembles a conventional box - shorter cigarette length (84.2 to 83.1 mm) smaller circumference (24.9 to 24.5 mm) and less permeable paper (26 to 20 ml/cm² x min.) and a lower total RTD (110 to 99 mm of H₂O). A larger fiber denier (2.6 to 3.2) resulted in a less efficient filter (63 to 57%).

VANTAGE ULTRA LIGHTS MENTHOL KING SIZE [Vantage Ultra Lights Men. 85]

- 7/82 National distribution - tar (5 mg) - similar to Vantage Ultra Lights 85 already on the market.
- 5/83 Test marketed Filtrona-type filter.
- 11/83 Filter (25 to 27 mm) and tipping paper (30 to 31 mm) lengths increased - ventilation system changed from mechanical to Hauni laser.
- 9/86 Discontinued.

VANTAGE ULTRA LIGHTS 100

- 10/79 Introduced - Tar (5 mg) and nicotine (0.5 mg) - Low delivery achieved by a filter ventilation of 47% - Blend contains 19% expanded tobacco.
- 4/81 Paper component in the cigarette paper decreased- higher puff count (8.6 to 9.2).
- 5/81 Filter changed to CA - expanded tobacco (28 to 17%), tobacco weight (0.791 to 0.836 g), filter ventilation (45 to 58%) increase - tar (5.2 to 5.6 mg) and CO (7.9 to 5.8 mg).
- 7/82 Tobacco weight (0.847 to 0.751 g) decreased - increased amount of expanded tobacco (17 to 20%). Lower filler rod TPM (29.0 to 26.2 mg) and puff count (10.7 to 9.0 mg) observed. Cigarette length shortened (99.4 to 99.0 mm).
- 8/82 CO (5.6 to 6.3 mg) increased - change to a less porous paper (17 to 24 sec.) - Increased paper component (0.8 to 1.3%).

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- 5/83 Test marketed Filtrona-type filter.
- 1/84 CO (6.4 to 5.6 mg) decreased - change to a more porous paper (24 to 16 sec.) with lower level of paper component (1.6 to 0.9%).
- 5/84 CO (5.7 to 7.2 mg) increased - change to a less porous paper (16 to 26 sec.) - Filter weight (0.20 to 0.22 g), filter length (27 to 31 mm) and tipping paper length (34 to 35 mm) increased - tobacco weight decreased (0.770 to 0.714 g).
- 11/86 Package with multicolored stripes replaces "bull's eye" package.
- 12/89 Tobacco weight (0.729 to 0.709 g) and rod density (0.216 to 0.209 g/cc) decreased.
- 9/90 The level of expanded tobacco decreased (25 to 21%).
- 3/92 Packaging change resembles a conventional box - shorter cigarette length (99.1 to 97.8 mm) and smaller circumference (24.8 to 24.2 mm) resulting in a lower tobacco weight (0.75 to 0.70 g). Lower puff count (10.6 to 9.7) and total RTD 119 to 105 mm of H₂O correlate with the decreased tobacco weight. A less efficient filter (68 to 60%) and lower filter RTD (155 to 140 mm of H₂O) correlate with larger fiber denier (2.3 to 3.2) and lower filter weight (0.22 to 0.19 g).

VANTAGE ULTRA LIGHTS MENTHOL 100

- 7/82 National distribution - Tar (5 mg) similar to Vantage Ultra Lights 100 already on the market.
- 5/83 Test marketed Filtrona-type filter.
- 11/83 CO (6.9 to 6.0 mg) decreased due to more porous cigarette paper (24 to 16 sec.) with less paper component (1.5 to 0.8%).
- 9/84 Filter length increased (27 to 31 mm) - tobacco weight decreased (0.727 to 0.665 g). Tipping paper length increased (34 to 35 mm) - larger fiber denier (2.5 to 3.0) correlated with higher filter RTD (135 to 155 mm H₂O).
- 9/86 Blend change noted - changes in total alkaloids, total reducing sugars, filler rod TPM, reconstituted tobacco, and expanded tobacco resulted - correlated with higher tobacco weight and rod density - less porous cigarette paper with an increased level of paper component and a higher puff count were observed - no changes in smoke deliveries.
- 9/86 Discontinued.

WINCHESTER KING SIZE [Winchester 85]

- 10/74 Plain - Introduced - Tar (18 mg) and nicotine (1.3 mg) No unusual characteristics.
- Discontinued.

WINCHESTER MENTHOL KING SIZE [Winchester Menthol 85]

- 10/74 Menthol - Introduced - Tar (18 mg) and nicotine (1.3 mg) - No unusual characteristics.
- Discontinued.

WINSTON LONG SIZE (BOX) [Winston 80 (Box)]

- 9/60 Nicotine delivery and filler alkaloids decreased.
- 6/61 Nicotine delivery and total alkaloids decreased. Reducing sugars increased.
- 11/61 Lighter filter of same efficiency.
- 12/62 Alkaloids reduced by 0.2%.
- 5/63 Total alkaloids reduced.
- 2/65 Nicotine delivery and filler alkaloids increased.
- 3/70 Tar (2 mg) and nicotine (0.1 mg) decreased by addition of expanded tobacco (8%) - Tobacco weight lower.
- 2/71 The amount of expanded tobacco increased (8 to 10%). A lower tobacco weight and rod density were observed.
- 3/73 Filter length (17 to 19 mm) and tipping paper length (21 to 23 mm) increased - Tar (1 mg) and nicotine (0.1 mg) decreased.
- 11/75 Lower filler alkaloids (0.1%).
- 10/76 Tipping paper length increased (23 to 24 mm). Decrease in tar delivery (19 to 18 mg).
- 1/80 Tar (18 to 16 mg) and nicotine (1.3 to 1.1 mg) decreased by a change to a more porous paper and a more efficient filter.
- 11/88 New package graphics.
- 7/89 Tobacco weight (0.736 to 0.698 g) and rod density (0.249 to 0.236 g/cc) decreased.
- 9/90 The level of expanded tobacco decreased (16 to 12%).
- 1/91 Changed from 50/50 wood pulp/flax to 95-100% wood pulp.
- Discontinued.

WINSTON KING SIZE (BOX) [Winston 83 (Box)]

- 1/91 National distribution - compared to Winston 80 (Box): 3 mm increase in cigarette length, 2 mm increase in filter length (19.1 to 21.0 mm), tobacco weight (0.70 to 0.77 g), density (0.235 to 0.259 g), ventilation (none to 7%), lower expanded tobacco (12 to 9%), permeability (38 to 24%), circumference (25.0 to 24.5 mm).
- 3/91 Changed from 50/50 wood pulp/flax to 95-100% wood pulp.
- 9/91 Overwrap changed from polypropylene to FlavorSeal™, a metalized polyester.

WINSTON KING SIZE [Winston 85]

- 9/60 Nicotine delivery and filler alkaloids decreased.
- 11/61 Lighter filter of same efficiency.

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- 4/63 TPM and nicotine reduction (1.5 mg and 0.2 mg) - Total alkaloids reduced.
- 2/65 Nicotine delivery and filler alkaloids increased.
- 8/66 Filter length increased, 17 to 20 mm - No change in smoke deliveries.
- 11/69 Expanded tobacco (6%) noted in blend of some cigarettes.
- 3/70 Tar (1.5 mg) and nicotine (0.1 mg) decreased by addition of expanded tobacco (7%). Tobacco weight lower.
- 3/71 The amount of expanded tobacco increased (7 to 10%). A lower tobacco weight was noted
- 12/72 Filter length (20 to 21 mm) and tipping paper length (24 to 25 mm) increased. These changes increased filter efficiency and tar delivery decreased 1 mg.
- 11/75 Lower filler alkaloids (0.1%) correlating with a lower nicotine delivery.
- 2/76 Cigarette length (84.7 to 84.0 mm) decreased.
- 2/80 Tar (19 to 16 mg) and nicotine (1.4 to 1.0 mg) decreased as result of a change to a more porous paper and a more efficient filter.
- 5/81 Tar (14.8 to 14.0 mg) - filter ventilation by band of E.S.P. holes.
- 3/83 Test marketed pack containing 12 cigarettes per pack.
- 7/83 Tar (14.5 to 16.0 mg) and nicotine (1.1 to 1.2 mg) increased due to increased filler rod TPM (30.2 to 33.4), fiber denier (2.6/Y to 3.6/Y) and decreased paper component (1.6 to 0.4%).
- 11/88 New package graphics.
- 1/89 Tobacco weight lowered (0.751 to 0.714 g) - this resulted in lower total RTD (128 to 118 mm of H₂O), puff count (8.7 to 8.1) and ventilation level (9 to 6%) - higher total alkaloid level (1.9 to 2.0%) was observed - no changes were noted in smoke deliveries.
- 9/90 The level of expanded tobacco decreased (16 to 12%).
- 1/91 Blend decreased 12 to 7% expanded tobacco, weight of tobacco increased (0.71 to 0.75 g), ventilation increased from (7 to 18%), tar increased (16 to 19 mg), nicotine increased (1.1 to 1.6 mg).
- 1/91 Changed from 50/50 wood pulp/flax to 95-100% wood pulp.
- 9/91 Overwrap changed from polypropylene to FlavorSeal™, a metalized polyester.

WINSTON LIGHTS LONG SIZE (BOX) [Winston Lights 80 (Box)]

- 11/85 Nationally introduced - blend contains two different types of reconstituted material - delivers 10 mg tar and 0.6 mg nicotine.
- 11/88 New package graphics.

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7/89 Tobacco weight (0.682 to 0.657 g) and rod density (0.229 to 0.221 g/cc) decreased.

9/90 The level of expanded tobacco decreased (16 to 12%).

1/91 Changed from 50/50 wood pulp/flax to 95-100% wood pulp.

Discontinued.

WINSTON LIGHTS KING SIZE (BOX) [Winston Lights 83 (Box)]

9/90 National distribution. - this product delivers 9 mg tar and 0.7 mg nicotine-the filter length is 8 mm longer and the rod length is 4 mm shorter than the 80 (Box) product on the market-the circumference of this product is 24.6 mm-the cigarette paper is wood pulp and flax fibers.

5/91 Decreased expanded tobacco (12 to 7%), increased tobacco weight (0.62 to 0.69 g), density (0.235 to 0.259 g/cc), puff count (7.7 to 8.8 puffs/cigt.) and filler rod TPM (30.9 to 33.4 mg/cigt.). Ventilation increased (17 to 23%).

9/91 Overwrap changed from polypropylene to FlavorSeal™, a metalized polyester.

WINSTON LIGHTS KING SIZE [Winston Lights 85]

7/74 Introduced - 14 mg tar and 1.1 mg nicotine - 25 mm filter and ventilated - Blend contains 14% expanded tobacco.

11/75 Lower filler alkaloids (0.1%) correlating with a lower nicotine delivery.

12/80 Tar (12 to 10 mg), nicotine (0.9 to 0.8 mg), and CO (13 to 10 mg) deliveries were lowered as result of an increase in filter ventilation (16 to 25%). Filter ventilation increased by increasing number of ventilation holes from one row to two rows of mechanically perforated holes.

12/81 The tipping paper was changed from white to cork. The word "lights" on the tipping paper was removed and only the name Winston now appears on the cigarette.

9/82 Tar (9.4 to 8.4 mg) and CO (11.2 to 10.0 mg) decreased - increased ventilation (26 to 36%). Lower tobacco weight (0.736 to 0.715 g) and rod density (0.254 to 0.248 g/cc) observed.

10/82 Filter length increased (25 to 26 mm).

3/83 Test marketed pack containing 12 cigarettes per pack.

9/83 Filter (26 to 27 mm) and tipping paper (30 to 31 mm) lengths increased - rod density increased (0.244 to 0.249 g/cc) - Ventilation system changed from one row laser to one row mechanical perforation. Total and filter RTD increased.

1/84 Tar (9 to 11 mg), nicotine (0.7 to 0.9 mg) and CO (9 to 11 mg) increased - decreased ventilation (32 to 24%). Less porous paper (17 to 24 sec.) - ventilation changed from mechanical to electrostatic perforation.

3/88 Test marketed in Cleveland, Ohio with white tipping paper. No differences were observed in smoke deliveries.

7/88 Lower tar (10 to 9 mg), nicotine (0.7 to 0.6 mg) and CO (12 to 11 mg) deliveries resulted from a change to a more porous paper (19 to 15 sec.) - lower total RTD was observed. Ventilation type changed from electrostatic to laser perforation.

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- 11/88 New package graphics.
- 7/89 Tobacco weight (0.682 to 0.657 g) and rod density (0.229 to 0.221 g/cc) decreased.
- 9/90 The level of expanded tobacco decreased (16 to 12%).
- 1/91 Changed from 50/50 wood pulp/flax to 95-100% wood pulp.
- 9/91 Overwrap changed from polypropylene to FlavorSeal™, a metalized polyester.

WINSTON SELECT KING SIZE

- 3/92 Nationally introduced - 19 mg tar and 1.4 mg nicotine. Its advertisement claims "Select Tobaccos, Smooth, Rich Flavor."

WINSTON SELECT KING SIZE (BOX)

- 3/92 Nationally introduced - 19 mg tar and 1.4 mg nicotine. Its advertisement claims "Select Tobaccos, Smooth, Rich Flavor."

WINSTON ULTRA KING SIZE [Winston Ultra 85]

- 10/80 Test marketed - ultra low tar (3 mg) with a 25 mm CA filter and 60% filter ventilation - blend contains 25% expanded tobacco.
- 2/81 Tar (3.4 to 4.6 mg), nicotine (0.39 to 0.46 mg), and CO (4.0 to 5.5 mg) increased - lower filter ventilation (59 to 55%) - lower filter RTD (4.5 to 3.8), tobacco weight (0.645 to 0.609 mg) and rod density (0.222 to 0.209 g/cc) - increase in expanded tobacco (23 to 34%).
- 12/81 Name changed to Winston Ultra Lights 85.

WINSTON ULTRA LIGHTS KING SIZE [Winston Ultra Lights 85]

- 12/81 Name changed from Winston Ultra 85. The tipping paper was changed from white to cork.
- 5/82 Tar (4.9 to 5.4 mg) and CO (4.4 to 6.3 mg) increased. A higher total and filter RTD were observed. Ventilation system changed from 2 to 1 row of mechanical perforation, lower ventilation noted (51 to 44%).
- 8/82 Tobacco weight (0.594 to 0.638 g) and rod density (0.206 to 0.220 g/cc) increased - decreased amount of expanded tobacco (30 to 20%).
- 3/83 Filter length increased (25 to 26 mm) - CO delivery increased (6.0 to 7.6 mg) due to change to less porous paper (17 to 23 sec.) - paper component increased (0.8 to 1.6%).
- 9/83 Filter length (26 to 27 mm) increased rod density decreased (0.216 to 0.211 g/cc).
- 1/84 Tipping paper length decreased (32 to 31 mm).
- 11/88 New package graphics.
- 12/89 Tobacco weight (0.601 to 0.573 g) and rod density (0.212 to 0.203 g/cc) decreased.
- 9/90 The level of expanded tobacco decreased (25 to 21%).

A120
REYNOLDS TOBACCO CO.

- 1/91 Expanded tobacco decreased (21 to 16%), increase in tobacco weight (0.61 to 0.65 g), decreased paper component (1.2 to 0.5%), and decreased cigarette length (83.8 to 83.0 mm). Smoke deliveries have not changed.
- 1/91 Changed from 50/50 wood pulp/flax to 95-100% wood pulp.

WINSTON ULTRA LIGHTS KING SIZE (BOX) [Winston Ultra Lights 85 (Box)]

- 7/91 Test marketed - 5 mg tar, 0.5 mg nicotine with a 27 mm CA filter, white tipping paper, and 46% ventilation; blend contains 25% reconstituted tobacco and 16% expanded tobacco; FlavorSeal™ overwrap.

WINSTON 100

- 1/67 Test marketed - 100 mm long - 20 mm CA filter.
- 12/67 Tar (6 mg) and nicotine (0.3 mg) reduced by increase in filter length (20 to 25 mm) and tipping paper (24 to 30 mm).
- 4/68 Tar (1 mg) and nicotine (0.1 mg) increased by a blend change.
- 12/69 Expanded tobacco (6%) noted in blend of some cigarettes.
- 3/70 Tar (1 mg) and nicotine (0.1 mg) decreased by addition of expanded tobacco (7%) - Tobacco weight lower.
- 3/71 The amount of expanded tobacco increased (7 to 11%). A lower tobacco weight and rod density were noted.
- 9/73 Filter length (25 to 27 mm) and tipping paper length (30 to 31 mm) increased. Lower tar (1 mg) and nicotine (0.1 mg) observed.
- 11/75 Lower filler alkaloids (0.1%) correlating with a lower nicotine delivery.
- 2/76 Cigarette length (99.4 to 99.0 mm) decreased.
- 11/77 Cigarette length increased corresponding to 0.4 mm increase in filter length.
- 1/82 Pack color changed from gold to red.
- 9/82 Tar (14.1 to 16.4 mg), nicotine (1.02 to 1.25 mg) and CO (15.8 to 16.6 mg) increased - change to a less porous paper (17 to 25 sec.). Increased paper component (0.8 to 1.2%).
- 3/83 Test marketed pack containing 12 cigarettes per pack.
- 7/84 Tipping paper length increased (31 to 32 mm) - no changes in smoke deliveries.
- 3/85 Tar increased (16.0 to 17.4 mg) - ventilation decreased (17 to 10%) - lower nicotine (1.22 to 1.13 mg) and alkaloids (1.94 to 1.57%) - lower paper component (1.4 to 0.4%).
- 11/88 New package graphics.
- 7/89 Tobacco weight (0.879 to 0.781 g) and rod density (0.238 to 0.232 g/cc) decreased.
- 9/90 The level of expanded tobacco decreased (16 to 12%).

PHILIP MORRIS USA
CONFIDENTIAL

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- 1/91 Changed from 50/50 wood pulp/flax to 95-100% wood pulp.
9/91 Overwrap changed from polypropylene to FlavorSeal™, a metalized polyester.

WINSTON LIGHTS 100

- 3/77 Introduced - 14 mg tar and 1.1 mg nicotine - High efficiency 27 mm CA filter with 15% ventilation - cork tipping paper.
11/77 Cigarette length increased corresponding to 0.4 mm increase in filter length.
5/79 Lower tar (13 to 12 mg) correlating with a more efficient filter.
3/83 Test marketed pack containing 12 cigarettes per pack.
5/84 Tar (12.1 to 11.1 mg) and nicotine (0.94 to 0.86 mg) decreased - increase in filter length (27 to 31 mm), filter weight (0.16 to 0.19 mg), and tipping paper length (34 to 35 mm).
5/85 Lower CO delivery (15 to 12 mg) correlated with increased ventilation (17 to 30%) and decreased efficiency (61 to 56%) - lower total RTD and filter RTD were noted.
9/86 Test marketed in San Francisco - has a 24 mm circumference and a 98 mm cigarette length - delivers 10 mg tar and 0.7 mg nicotine.
10/86 National distribution.
5/91 Decreased expanded tobacco (12 to 7%), increased tobacco weight (0.78 to 0.80 g) and density (0.230 to 0.238 g/cc), ventilation (26 to 33%), filter RTD (91 to 104 mm of H₂O), puff count (9.5 to 10.4). Change from electrostatic to two rows of laser perforation.
9/91 Overwrap changed from polypropylene to FlavorSeal™, a metalized polyester.

WINSTON LIGHTS 100 (BOX)

- 3/88 Test marketed in Cleveland, Ohio with white tipping paper. No differences were observed in smoke deliveries.
11/88 New package graphics.
3/89 Tobacco weight (0.807 to 0.781 g) and rod density (0.238 to 0.232 g/cc) lowered - no changes were noted in smoke deliveries.
9/90 The level of expanded tobacco decreased (16 to 12%).
1/91 Changed from 50/50 wood pulp/flax to 95-100% wood pulp.
5/91 Lowered expanded tobacco (12 to 7%), increased tobacco weight (0.73 to 0.78 g) and density (0.236 to 0.251 g/cc), ventilation (19 to 37%) and puff count (9.2 to 10.3). Decreased total RTD (145 to 124 mm of H₂O), tar (11 to 10 mg/cigt.) and CO (13 to 10 mg/cigt.). Ventilation type changed from two rows of laser to one row of Hauni laser perforation.
9/91 Overwrap changed from polypropylene to FlavorSeal™, a metalized polyester.

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CONFIDENTIAL

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WINSTON ULTRA 100

10/80 Test marketed - ultra low delivery (4 mg) - 28 mm CA filter with 52% filter ventilation - blend contains 25% expanded tobacco.

12/81 Name changed to Winston Ultra Lights 100.

WINSTON ULTRA LIGHTS 100

12/81 Name changed from Winston Ultra 100. The tipping paper was changed from white to cork.

9/82 Expanded tobacco amount decreased (29 to 21%) - increased filter weight (0.18 to 0.20 g) resulted in increased filter RTD (124 to 140 mm H₂O).

5/84 Filter length (27 to 31 mm), filter weight (0.20 to 0.22 g) and tipping paper length increased (34 to 35 mm) - tobacco weight decreased (0.770 to 0.723 g).

11/88 New package graphics. 11/88

12/89 Tobacco weight (0.724 to 0.698 g) and rod density (0.214 to 0.207 g/cc) decreased.

9/90 The level of expanded tobacco decreased (25 to 21%).

1/91 Changed from 50/50 wood pulp/flax to 95-100% wood pulp.

WINSTON ULTRA LIGHTS 100 (BOX)

7/91 Test marketed - 5 mg tar, 0.5 mg nicotine with a 31 mm CA filter, white tipping paper and 48% ventilation; blend contains 25% reconstituted tobacco and 16% expanded stems; FlavorSeal™ overwrap.

WINSTON MENTHOL 100

1/67 Test marketed - 100 mm long - 20 mm CA filter.

12/67 Tar (4 mg) and nicotine (0.2 mg) reduced by increase in filter length (20 to 25 mm) and tipping paper (24 to 30 mm).

10/70 Tar (2 mg) decreased by addition of expanded tobacco (6%) - Tobacco weight lower.

1/73 Filter length (25 to 27 mm) and tipping paper length (30 to 31 mm) increased - No change in smoke deliveries.

8/74 New silver package - High menthol in smoke, filler, and filter.

11/75 Lower filler alkaloids (0.1%) correlating with a lower nicotine delivery.

11/77 Cigarette length increased corresponding to 0.4 mm increase in filter length.

Discontinued.

DESCRIPTION OF REPORTED DATA

All values reported are averages of four monthly samplings, except for reconstituted tobacco, expanded tobacco, and expanded stem levels, which are determined on a semi-annual basis.

Generally, the value reported is an average of four samplings. When a change has been detected and confirmed, the reported values may consist of one value or an average of two or three values, and are shown in parentheses.

The minor brands are examined once per year for FTC tar, nicotine and CO deliveries as well as physical characteristics.

Data appearing on the graphs represent the average of the four monthly samplings.

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I. SAMPLING

The freshest cigarettes are obtained from one jobber in ten major cities (Richmond, Virginia; Washington, D.C.; New York, New York; Louisville, Kentucky; Charlotte, North Carolina; Atlanta, Georgia; St. Louis, Missouri; New Orleans, Louisiana; Dallas, Texas; and Chicago, Illinois). The most current date of manufacture is used for these analyses. The total number of cartons used never exceeds ten.

Seven packs from each carton are opened. The cigarettes are randomized and equilibrated to standard conditions; i.e., 75°F and 60% R.H. for at least 24 hours. After the cigarettes have been equilibrated, random samples are selected for analyses.

Cigarettes for menthol analyses are taken immediately after the packs are opened and placed in sealed containers; thus, the menthol content of the filler, filter, and smoke are determined from unequilibrated cigarettes.

II. CIGARETTE PERFORMANCE

A. SMOKE CHARACTERISTICS

1. FTC Tar

FTC Tar is defined as TPM minus water minus nicotine and cigarettes are smoked to a 23 mm butt or tipping paper plus 3 mm (whichever is the longer).

2. TPM

Total particulate matter (TPM), smoke particles larger than 0.3 micron (μm), is determined by smoking cigarettes on a twenty-port constant volume smoking machine which provides a 35 milliliter (ml) puff of two seconds duration once each minute. The TPM, including nicotine, is collected on Gelman disposable filter pads which are weighed before and after smoking five cigarettes (one port) to a 23 millimeter butt length or tipping paper plus 3 mm (whichever is the longer). A total of 8 ports (40 cigarettes) are smoked per sample each month.

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3. Nicotine and Water in TPM

Nicotine and water in TPM are determined simultaneously by gas chromatography of an isopropanol extract. Samples are compared to standards of known nicotine and water concentration. n-heptadecane and ethanol are used as internal standards in the extracting solution for nicotine and water, respectively, to eliminate instrumental variation. For nicotine and water determination in TPM, eight ports are smoked for each brand as described in Section II.A.2. Each TPM pad is extracted with 10 ml of isopropanol extracting solution. The extracts are then analyzed on a gas chromatograph. Sample injection, peak integration, and sample calculations are automated. Data are reported on a milligram per cigarette basis.

4. Menthol

Menthol is determined in smoke (TPM pads), filler and filter plugs by gas chromatography of an ethanol extract. The samples are compared to standards of known concentration. Carvone is used as an internal standard in the extracting solution to eliminate instrument variation. Sample injection, peak integration, and sample calculations are automated. For menthol in smoke determinations, eight ports (five cigarettes per port) are smoked for each brand. The cigarettes are smoked to a 23 mm butt length or tipping paper plus 3 mm (whichever is longer). Each TPM pad is extracted in the 95% ethanol extracting solution. The sample for the filler and filter analyses represents a composite sample of twenty cigarettes randomly selected from the same packs used for menthol in smoke analysis. The composite sample is analyzed in duplicate. Data are reported as milligrams per cigarette.

5. Filter Efficiency

Four ports of TPM are smoked by the direct filter weight method to determine filter efficiency. This involves cutting off the filters, weighing them, and reattaching them to monitor tobacco rods using a glass sleeve. This procedure permits the same amount of smoke to be presented to the filter. Reweighing the filters after smoking yields the weight of filtered material. Percent filtration efficiency can then be calculated. The filter efficiency values for carbon filter cigarettes are slightly higher than for CA-type filter cigarettes because of the added weight contributed by the carbon pick-up of gas phase components.

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6. Puff Count

Puff count is determined by counting the number of puffs required to reach a designated butt length during the TPM analysis.

7. Carbon Monoxide (CO) and Nitric Oxide (NO) Deliveries in Cigarette Smoke

Five cigarettes are smoked for the determination of CO and NO in gas phase smoke. Gas phase smoke is the portion of whole mainstream cigarette smoke which passes through a standard Cambridge filter pad. The five cigarettes are smoked simultaneously on a 5-port smoking machine using standard FTC parameters. The gas phase smoke for the five cigarettes is combined per puff and transferred to a Fourier Transform infrared analyzer. This procedure simultaneously determines CO and NO on a puff-by-puff basis. The results are calculated on a per cigarette basis by the summation of the per puff values.

8. Gas Phase Smoke Index

The smoke index (S.I.) represents the efficiency of a charcoal filter for the removal of hydrogen cyanide and acetaldehyde from the gas phase smoke. Gas phase smoke is the portion of whole mainstream which passes through a standard Cambridge filter pad. For each determination, ten cigarettes are smoked. Five cigarettes are smoked simultaneously on a 5-port smoking machine using standard FTC parameters. The filters are removed from a second set of five cigarettes and they are then smoked simultaneously. For each set, the gas phase smoke for the five cigarettes is combined per puff and transferred to a Fourier Transform infrared analyzer. This procedure simultaneously determines hydrogen cyanide and acetaldehyde on a puff-by-puff basis. These components are calculated on a per cigarette basis by the summation of the per puff values. The smoke index is the combined percent reduction of hydrogen cyanide and acetaldehyde. The higher the smoke index value (maximum 100), the greater the charcoal filter efficiency for their removal.

B. RESISTANCE-TO-DRAW (RTD)

Resistance-to-draw is defined as the pressure drop across a cigarette with an air velocity of 1050 cc/min. To determine this pressure drop, one end of a cigarette is inserted into a tube through which air can be drawn. The pressure difference between the open and enclosed end of the cigarette is

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measured. The instrument is calibrated by means of standardized capillary tubes of known pressure drop. Twenty-five cigarettes are tested per brand.

C. STATIC BURN RATE

Static burn time is the number of minutes required for 40 mm of the tobacco rod to burn in a device which measures the time automatically. Four cigarettes per brand are tested.

III. CIGARETTE CONSTRUCTION

A. PAPER

1. CORESTA

Permeability of cigarette paper is defined as the ratio of the air flow (volume per unit of time) per unit of surface area of the test paper times the difference in pressure across the test paper in kilopascals. Ten cigarettes per brand are tested.

2. Paper Component

The substances added to paper to control the rate of burning are determined quantitatively on an extract of the paper. Phosphorus is determined by energy dispersive x-ray fluorescence. Citrate is determined by an ion chromatographic analysis of a filtered hydrochloric acid extract.

B. CIRCUMFERENCE

Circumference is measured with a Techmet LaserMike® Circumference Micrometer. The cigarettes to be tested are placed in the hopper which automatically positions the cigarette in the path of a low power laser beam. The circumference measurement is a function of that portion of the laser beam which is blocked out. During one circumference measurement, 100 readings are taken per revolution. An internal microprocessor computes the circumference and the results are reported in mm. Ten cigarettes per brand are tested.

C. WEIGHT OF TOBACCO

Ten cigarettes per brand are tested. The tobacco portion only is weighed. The weight of tobacco per cigarette is calculated and corrected to a 12.5% moisture basis.

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D. CIGARETTE AND TOBACCO ROD LENGTH

Cigarette length is determined by measuring the total length of the cigarette rod paper and tipping paper on a specially designed instrument. Lengths are measured accurately to the nearest 0.1 mm. A total of ten cigarette papers are measured per brand. The rod length is the difference between the cigarette length and filter length.

E. TIPPING PAPER LENGTH

Cigarettes are selected and the tipping paper is measured with a millimeter scale divided into 0.5 millimeter increments.

F. FILTER PLUGRTD, Ventilation, Length, and Weight

The same cigarettes which are used for total RTD are used for these measurements. To measure ventilation, a dilution head, attached to the PDI encapsulator and connected to a digital meter is used. The meter responds to the change in flow through the ventilation holes in the cigarette filter tipping paper. The filters are then separated from the rods and individual measurements of filter RTD are made. The filter RTD is an encapsulated measurement eliminating the effects of ventilation.

The length of each filter is measured to the nearest 0.1 mm using a linear output transducer connected to a digital meter. The filters from ten cigarettes are measured to yield an average filter length. The filter material, without plug wrap, is then weighed to the nearest 0.001 g.

G. CARBON

Carbon is determined on filter plugs by dissolving the supporting filter materials in an appropriate solvent and drying the remaining carbon for one hour at 250°C. Five plugs are used per determination and the values reported are the average of four determinations in mg carbon/plug.

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IV. FILLER COMPOSITION

A. TOTAL ALKALOIDS AND TOTAL REDUCING SUGARS

Nicotine alkaloids and reducing sugars are extracted from cigarette filler with an aqueous acetic acid solution and determined colorimetrically using an autoanalyzer. Alkaloids react with cyanogen chloride in the presence of an aromatic amine to produce a color proportional to the alkaloid concentration. Reducing sugars are determined by their reaction with p-hydroxybenzoic acid hydrazide (PAHBAH) in a basic medium to form a color. Samples are compared with nicotine and 1:1 glucose-fructose standards. All data are reported on a dry weight basis.

B. RECONSTITUTED TOBACCO AND EXPANDED STEMS

The amount of reconstituted tobacco and expanded stem (ES) is determined by microscopically separating the components from the filler and weighing the fractions. The center third of two cigarettes is used to make this determination.

C. EXPANDED TOBACCO

The filler from 18 cigarettes is placed in acetone. The expanded tobacco and the non-expanded material are separated, air-dried, and weighed. The expanded tobacco percentage is calculated. This method was adopted as the standard procedure for expanded tobacco in June, 1980.

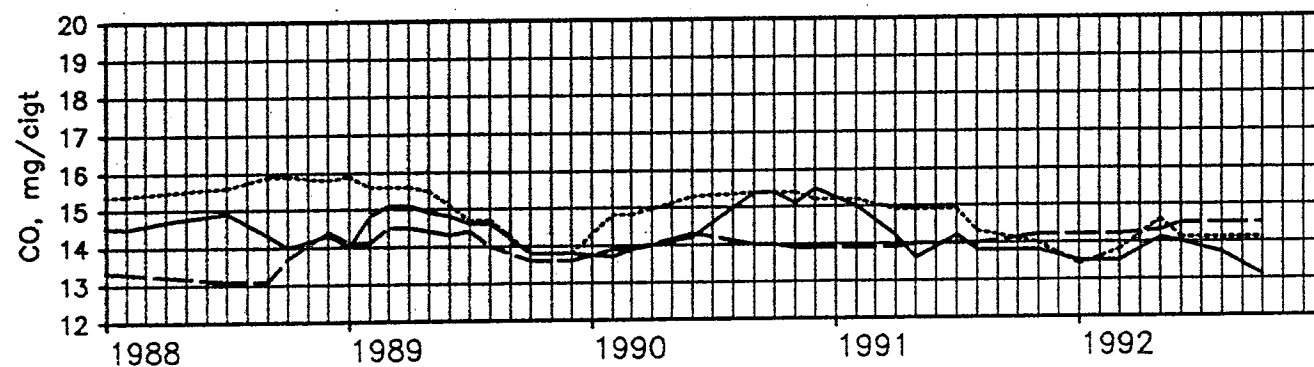
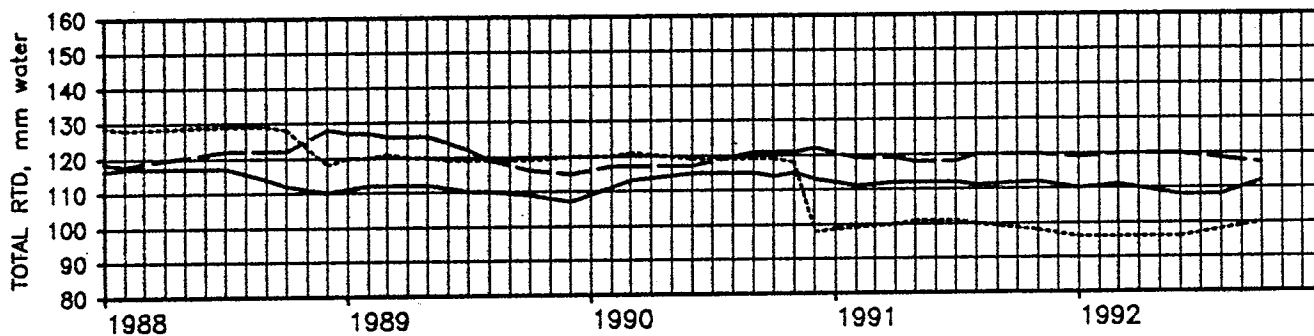
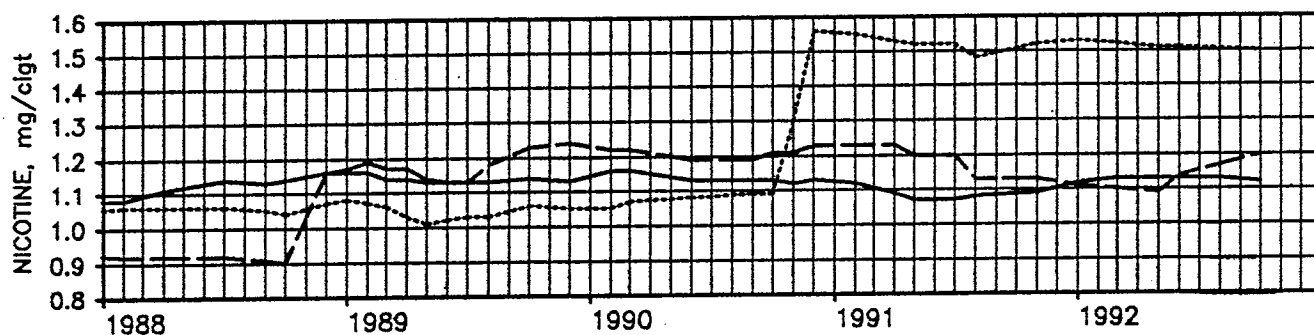
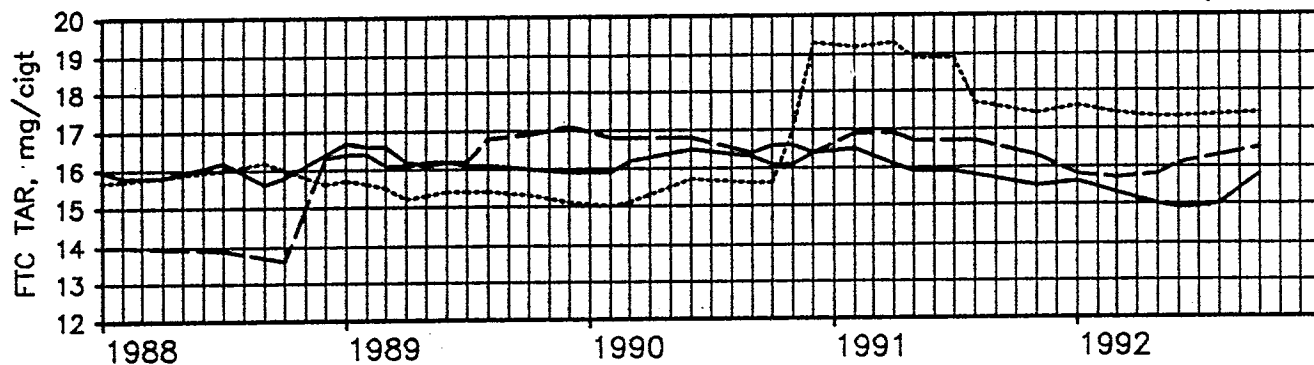
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GRAPHS

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King Filter: MARLBORO, WINSTON, VICEROY

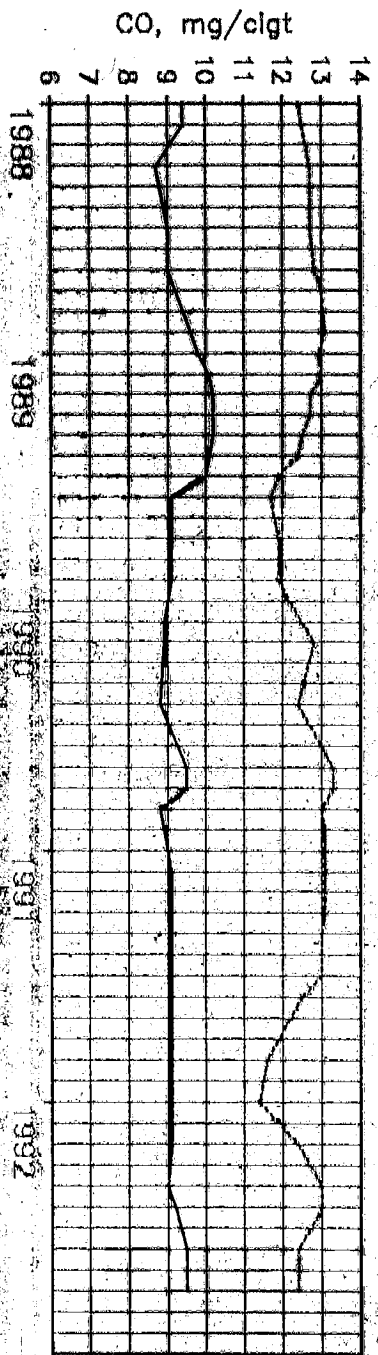
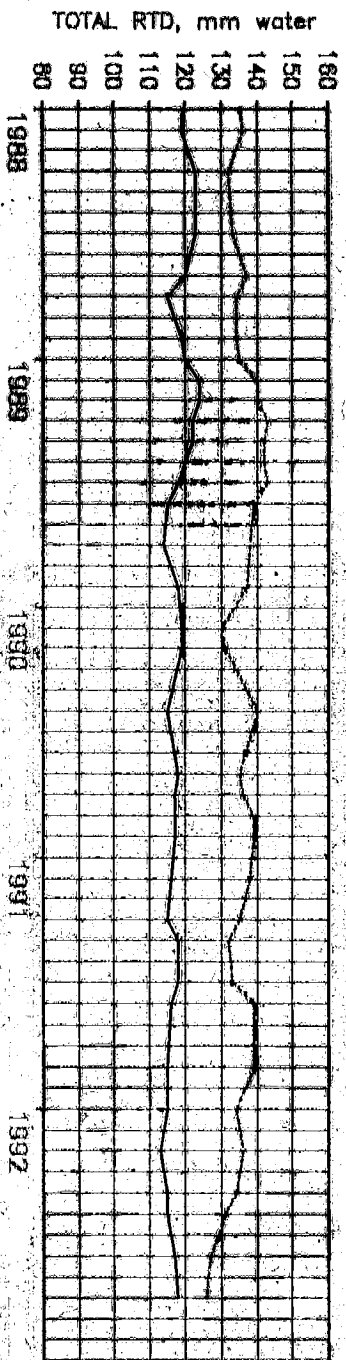
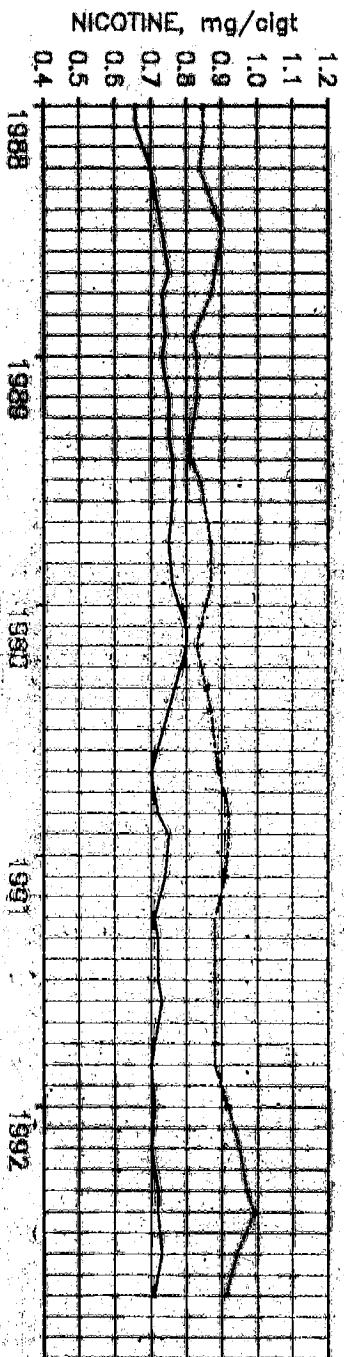
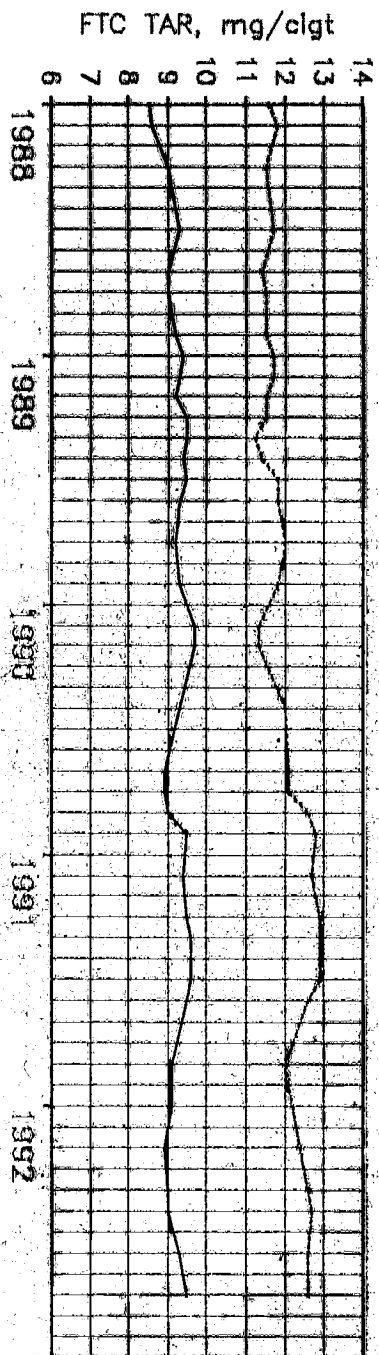
— Marlboro
 --- Winston
 - - - Viceroy



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King Filter: PARLIAMENT LRS, KENT

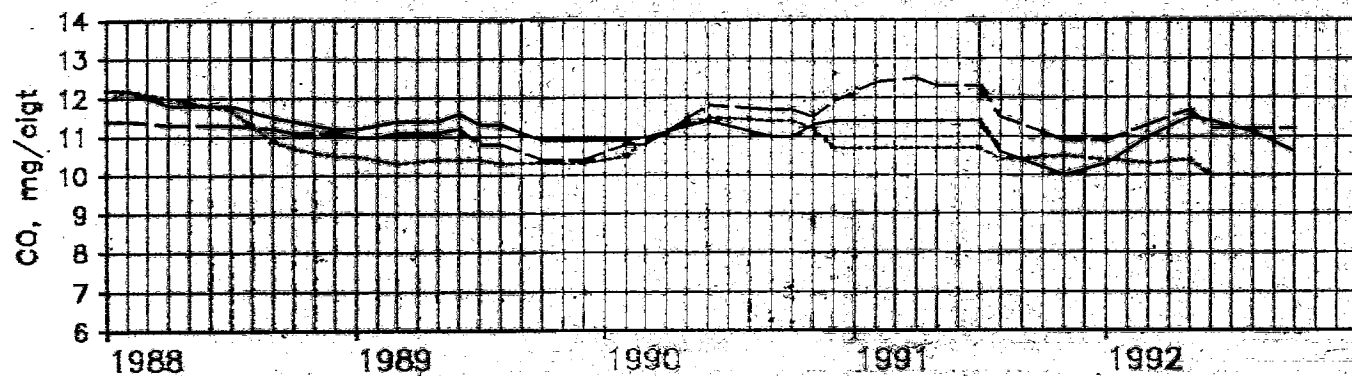
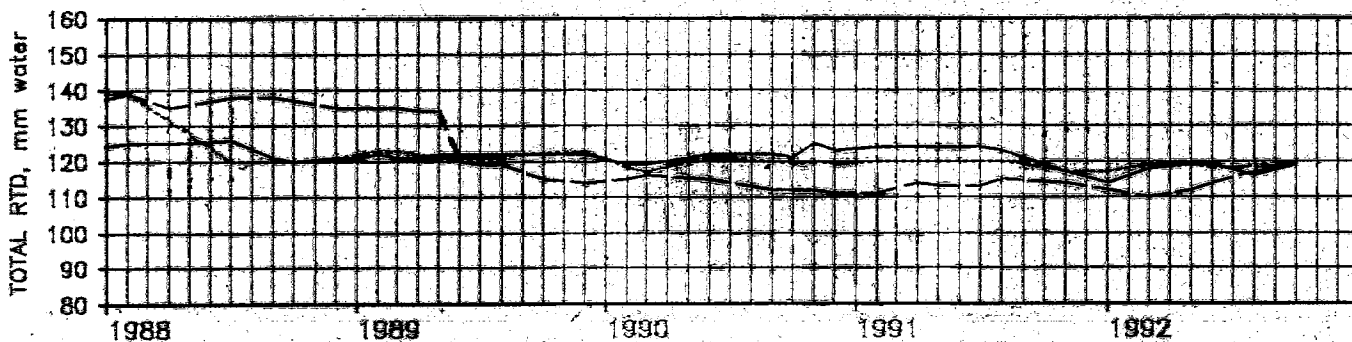
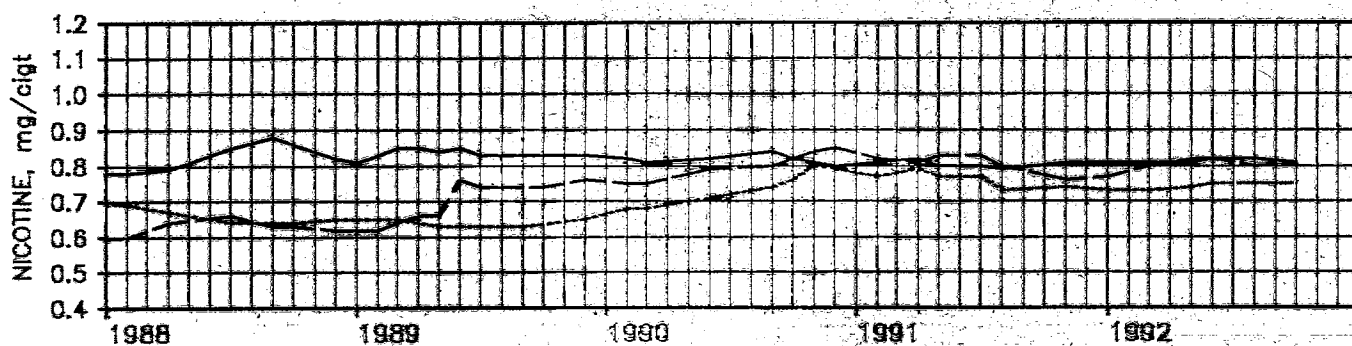
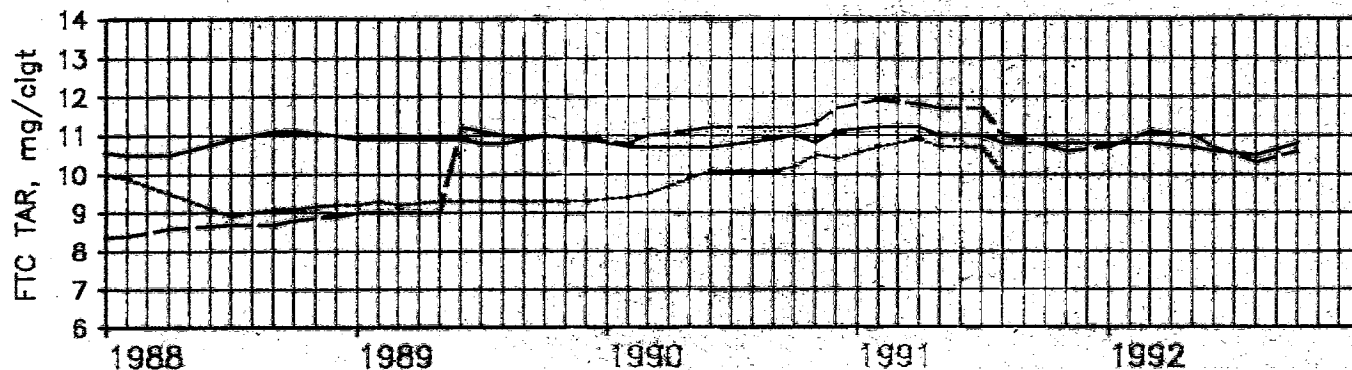
— Parliament
— Kent



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King Filter Lights: MARLBORO LTS, WINSTON LTS, CAMEL LTS

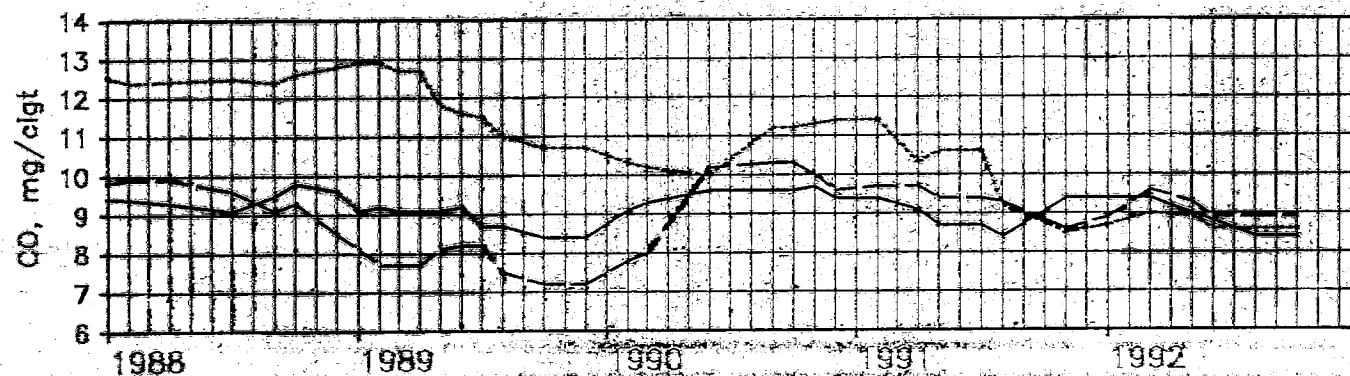
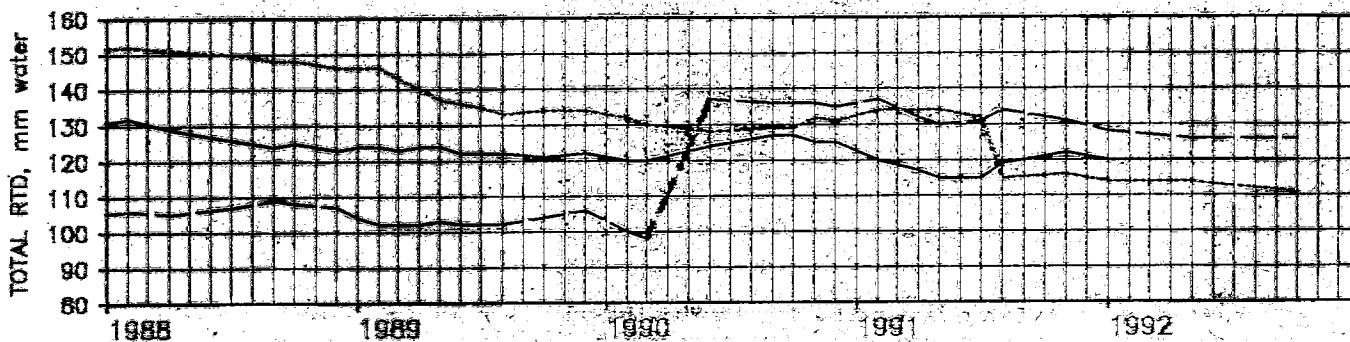
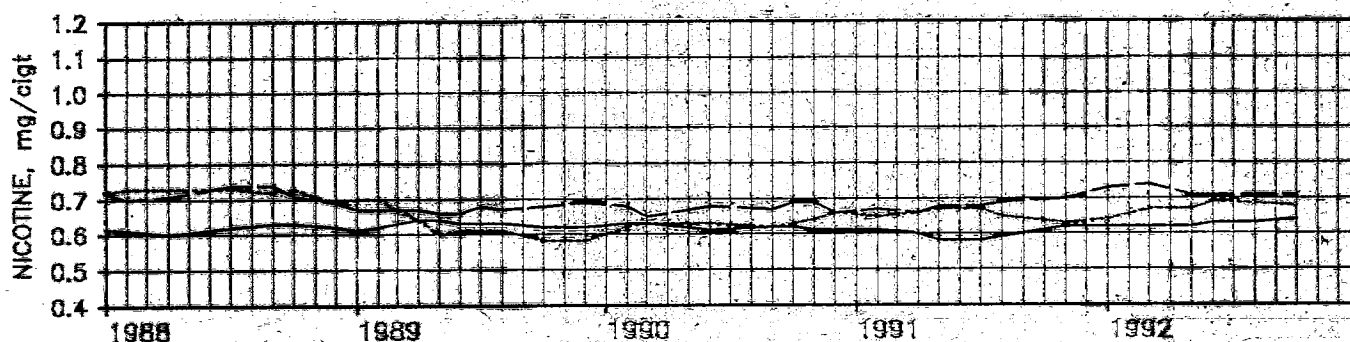
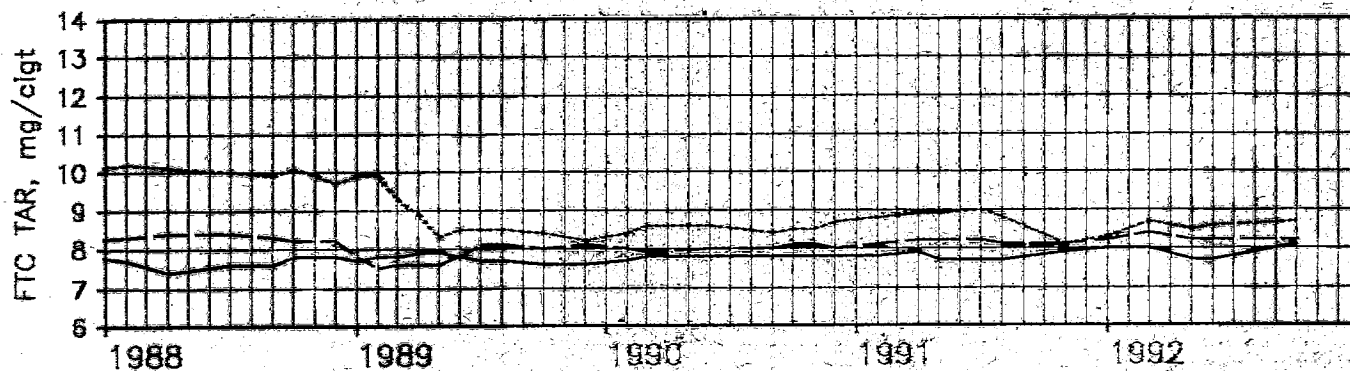
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— Winston Lts
— Camel Lts



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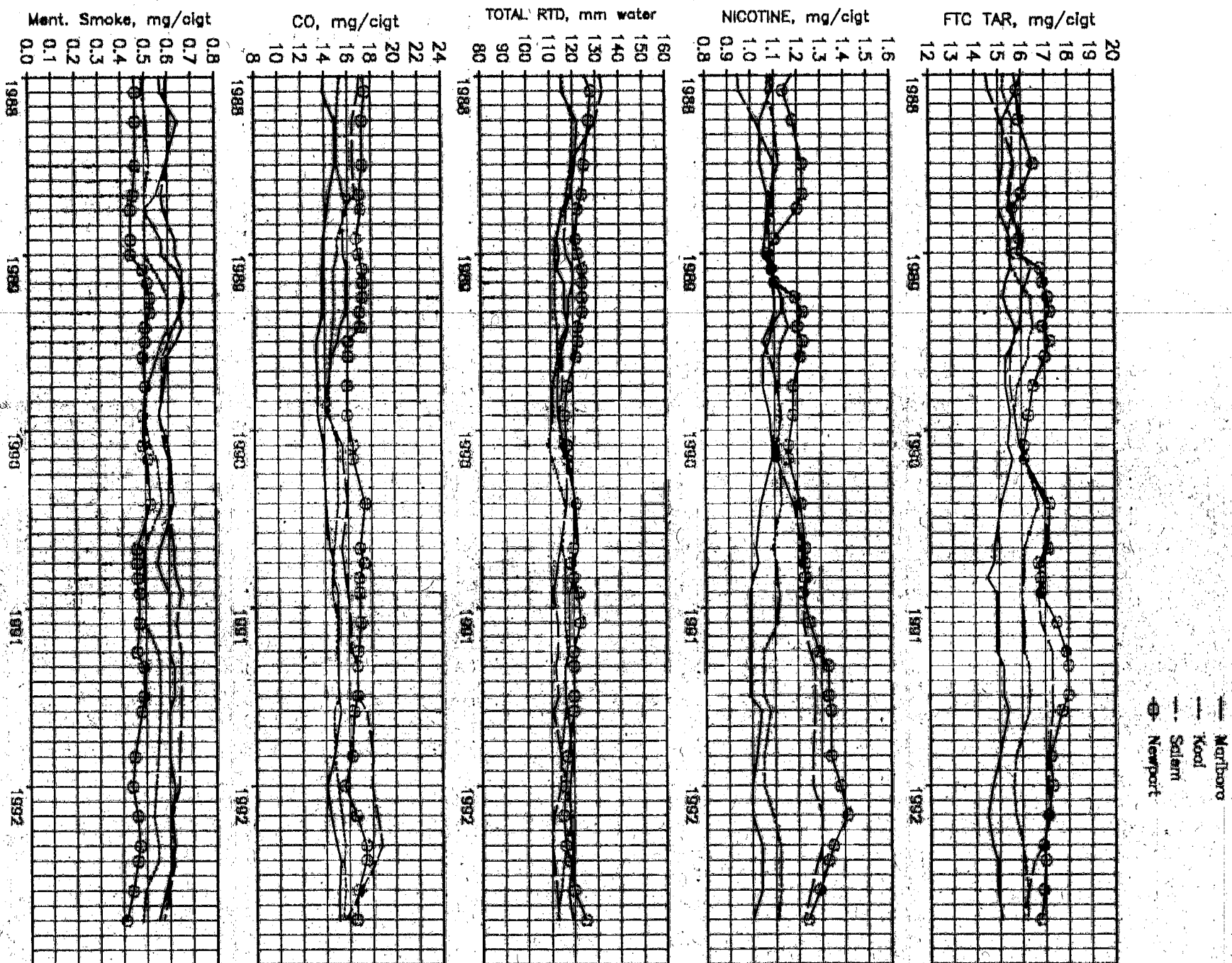
King Filter Low Tar: MERIT, VANTAGE, KENT GOLDEN LTS

— Merit
— Vantage
— Kent Golden Lts



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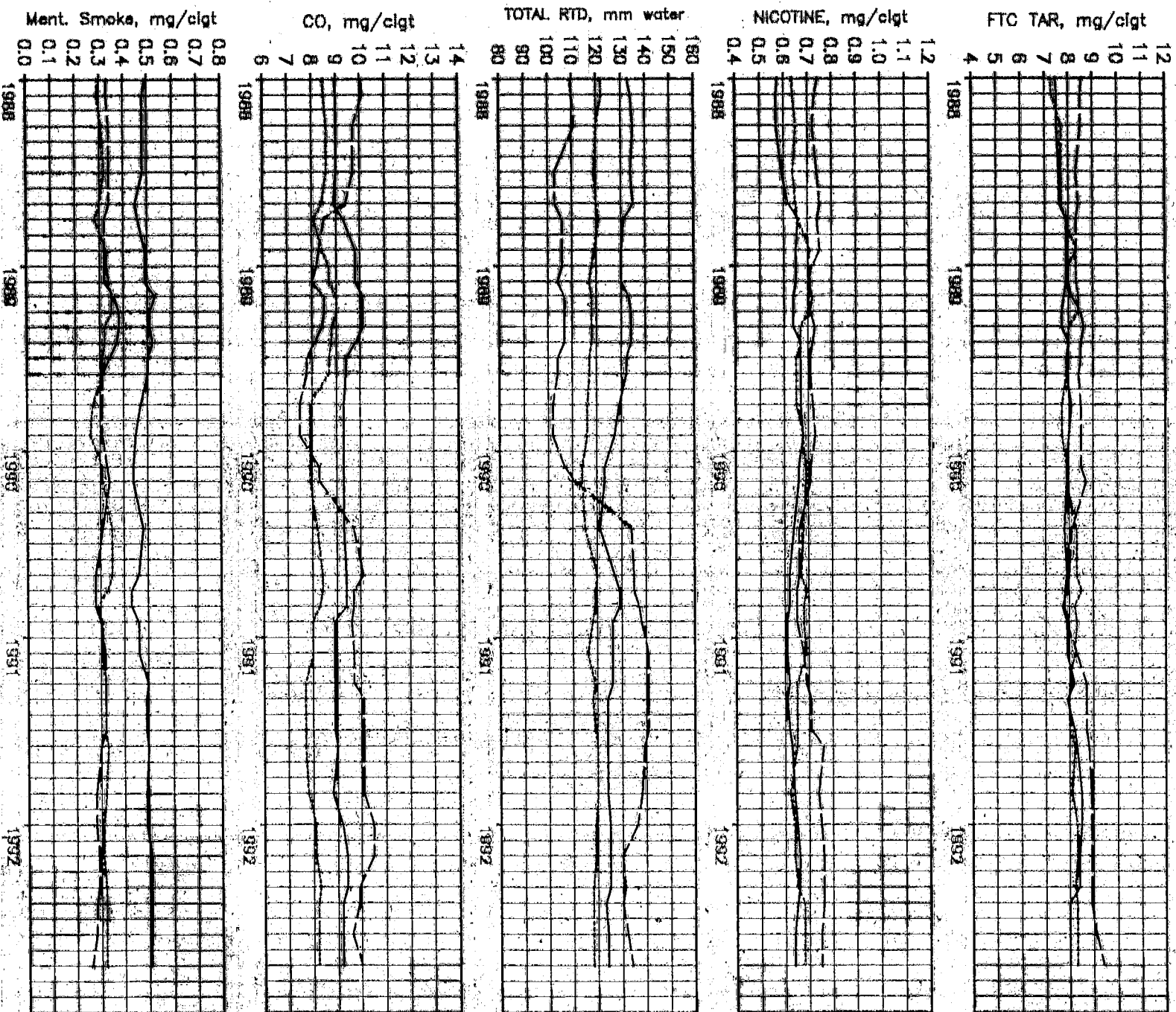
King Filter Menthol: MARLBORO, KOOL, SALEM, NEWPORT



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King Filter Menthol: MENTH, KOOL LIGHTS, NEWPORT LIGHTS

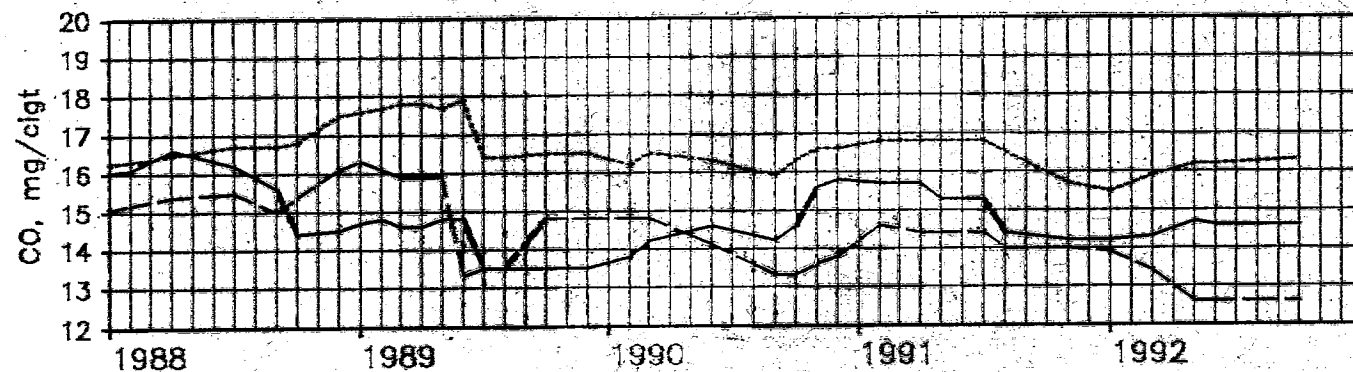
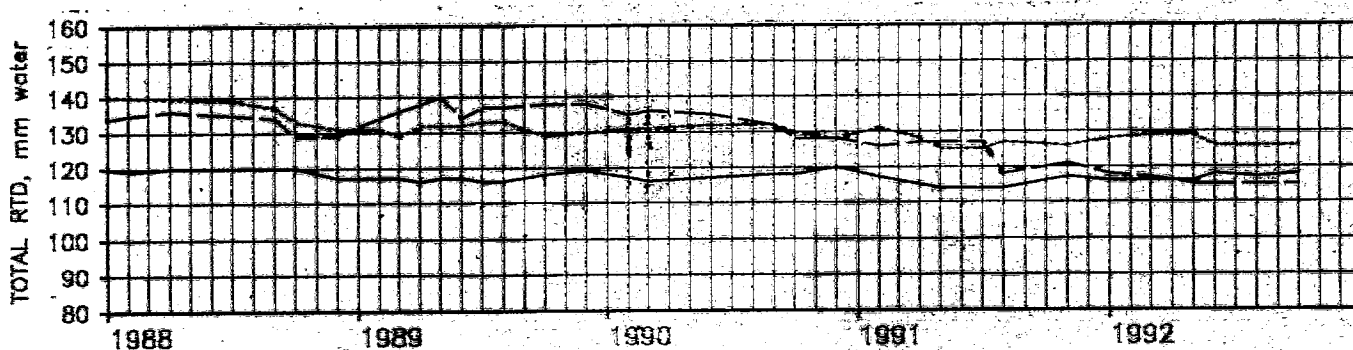
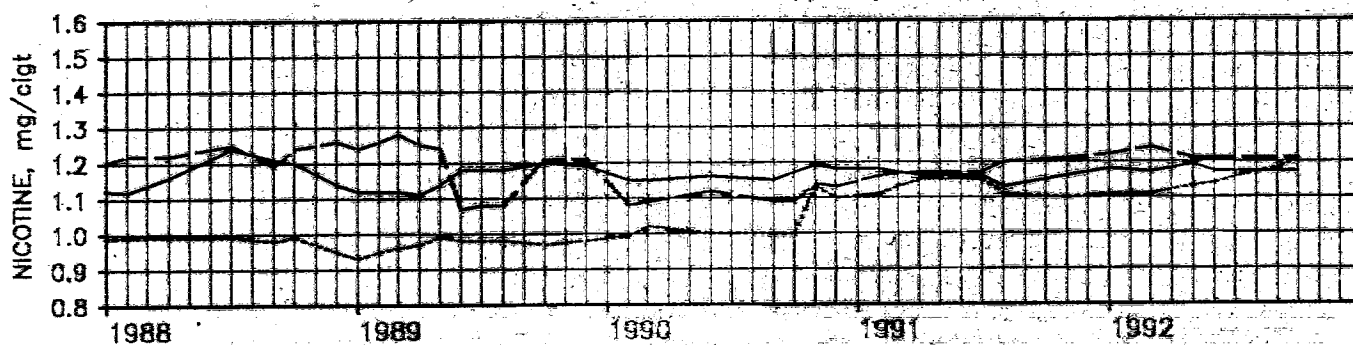
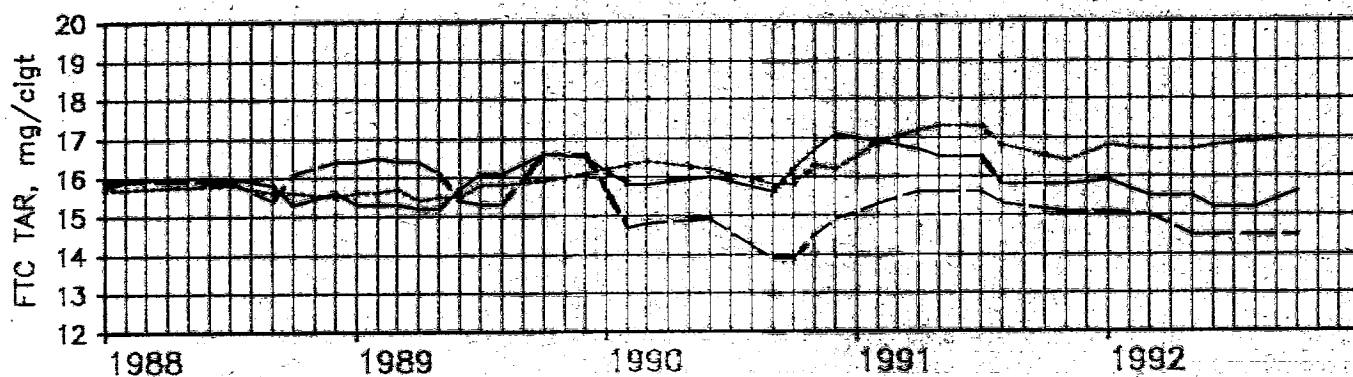
— Menth
— Koool Lts
— Newport Lts



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100's: MARLBORO, WINSTON, PALL MALL

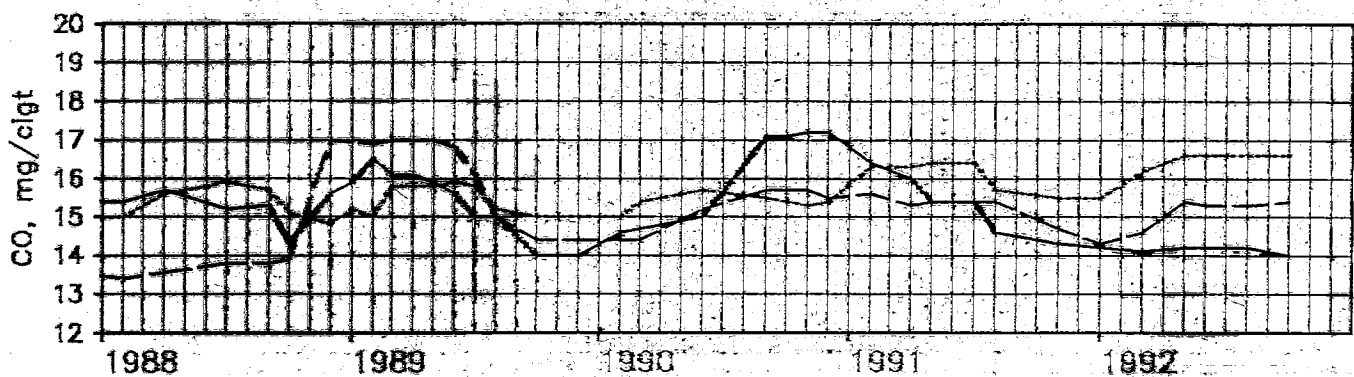
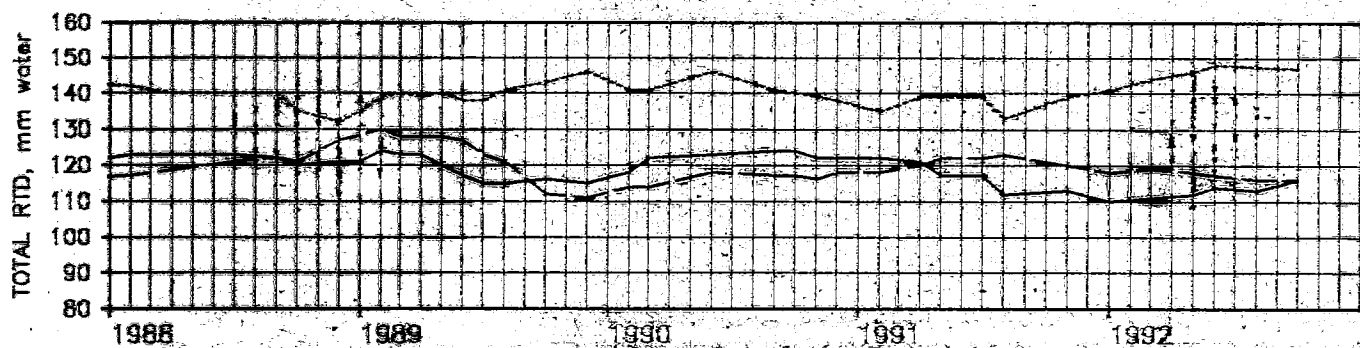
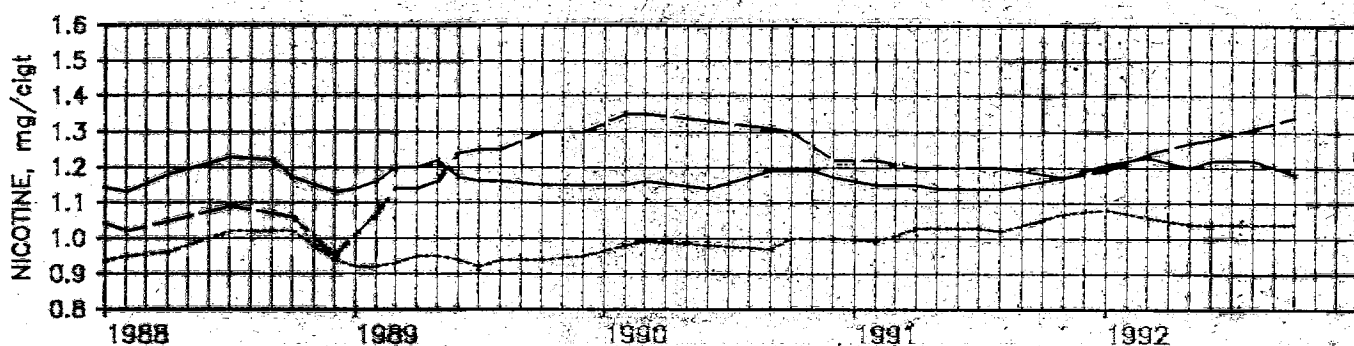
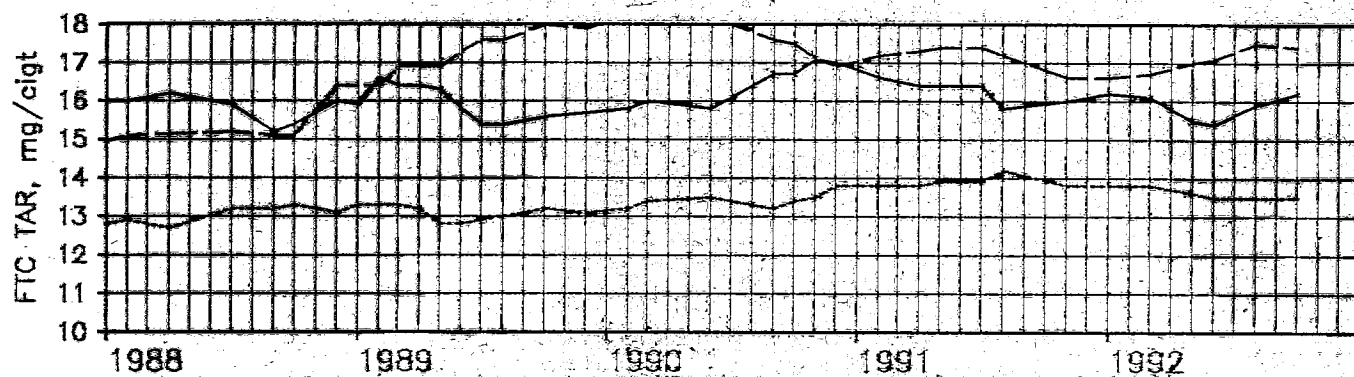
— Marlboro
— Winston
— Pall Mall



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100's: BENSON & HEDGHE, TAREYTON, VICEROY

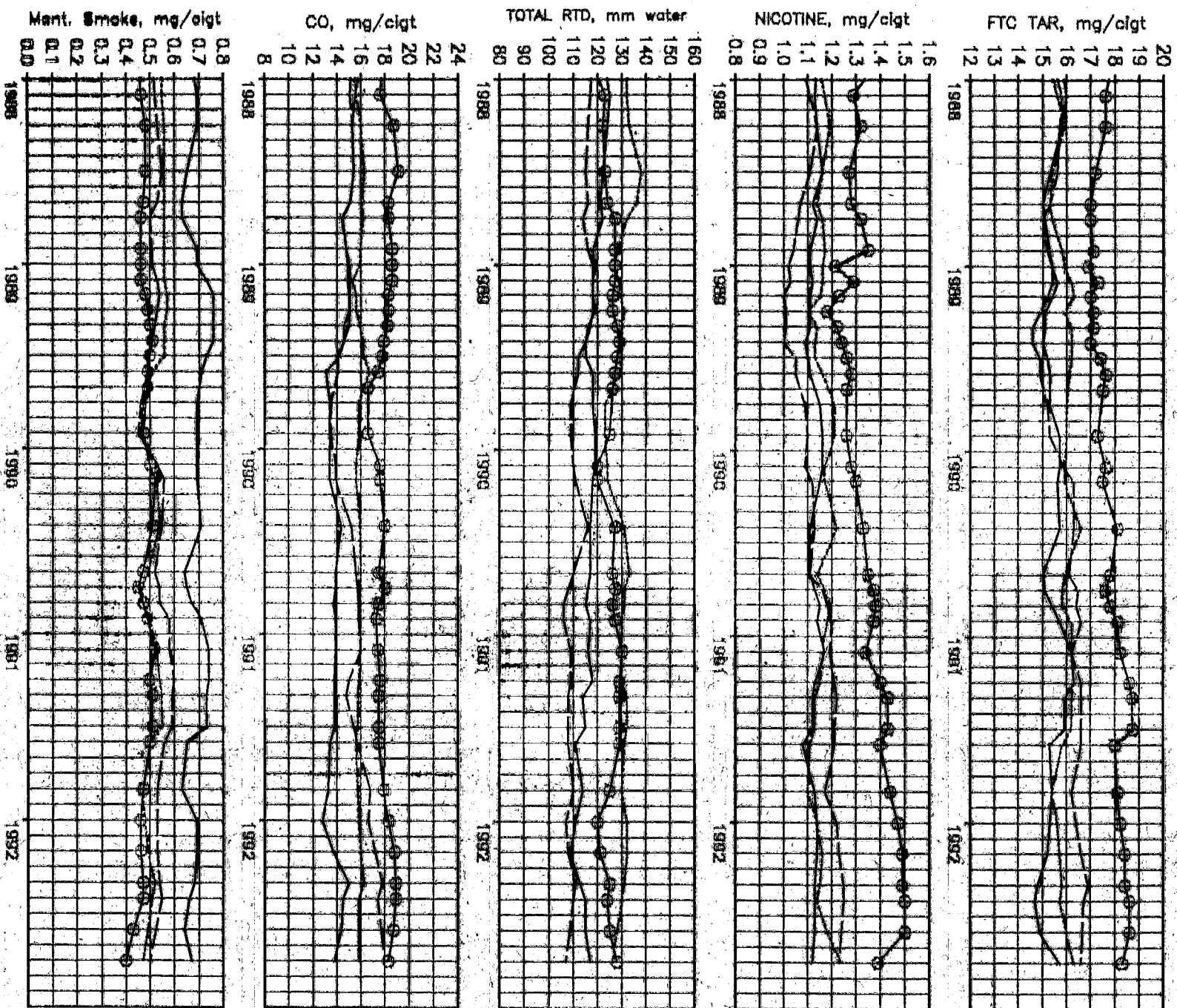
— B & H
— Tareyton
— Viceroy



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100's Menthol: HENSON & HEDGES, KOOL, SAIJIN, NEWPORT

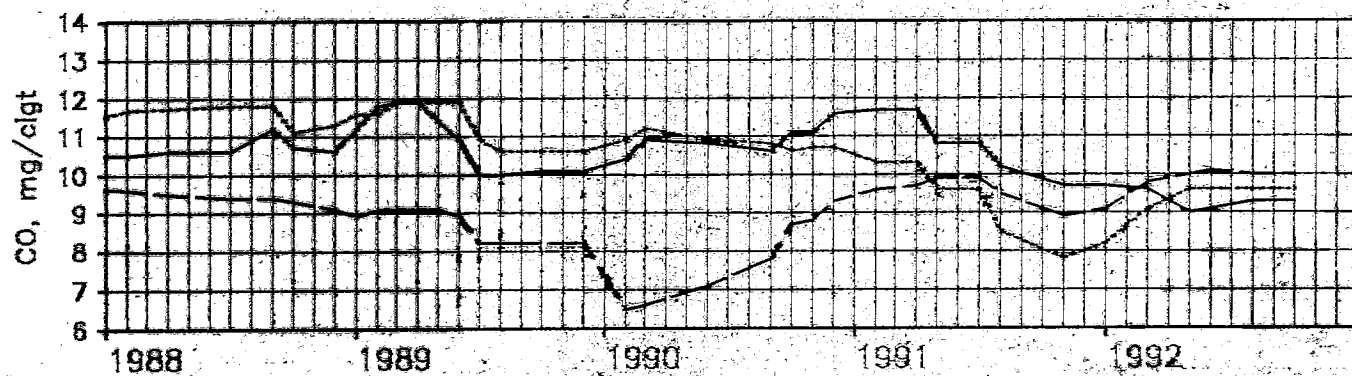
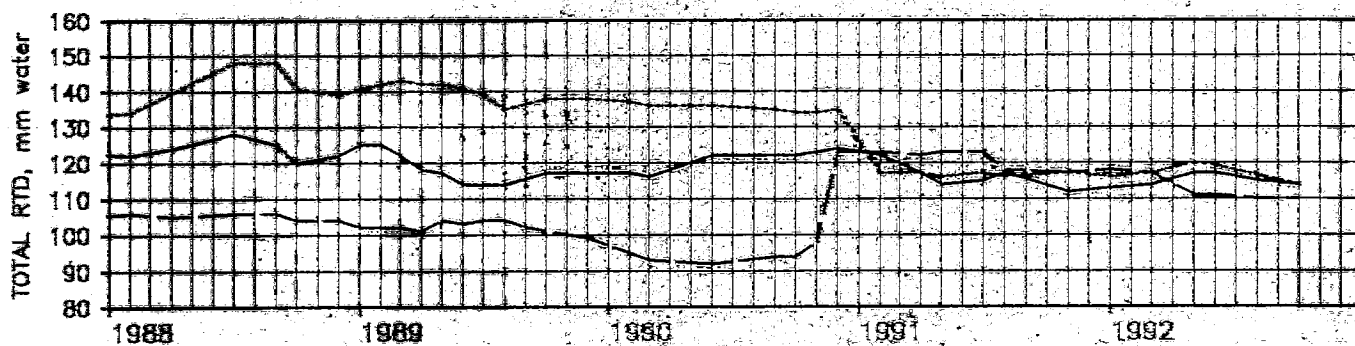
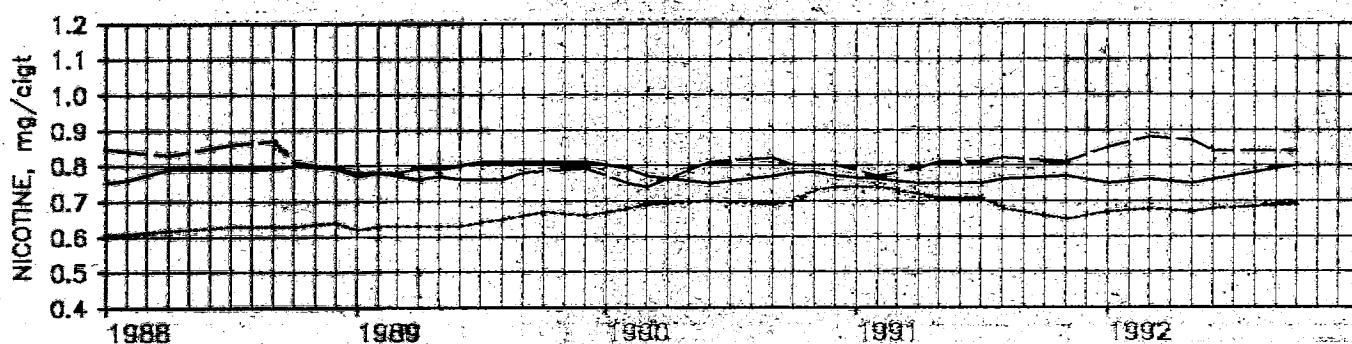
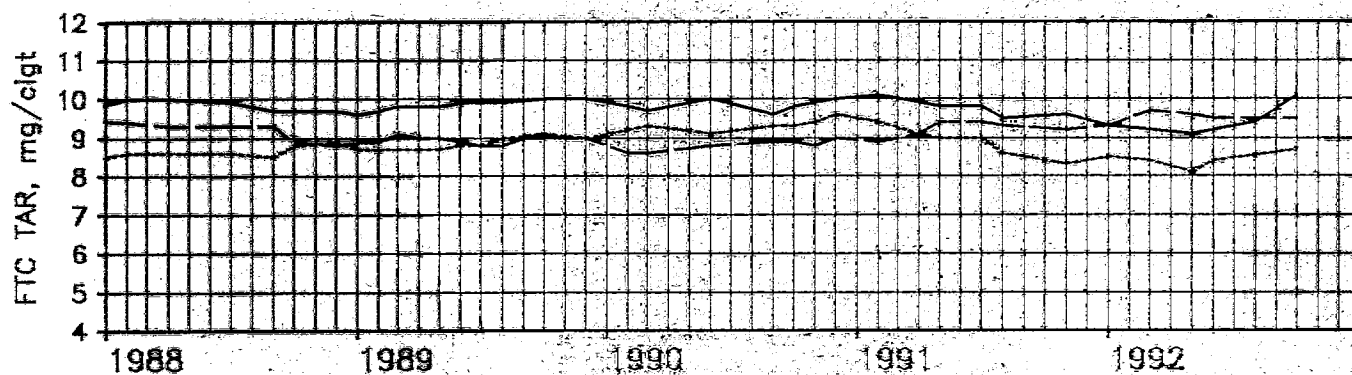
— B & H
— KOOL
— Saijin
● Newport



2055651165

100's: MERRIT, VANTAGE, KENT GOLDEN LTS

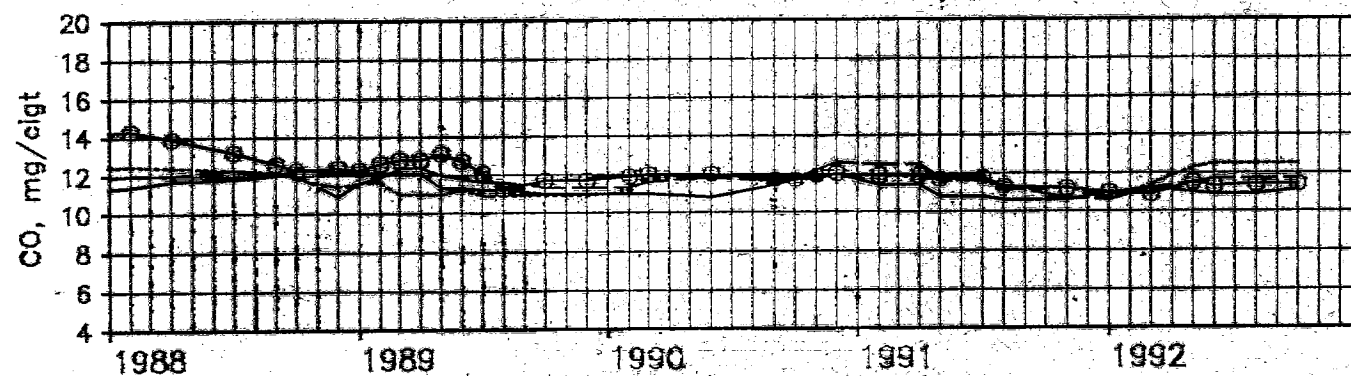
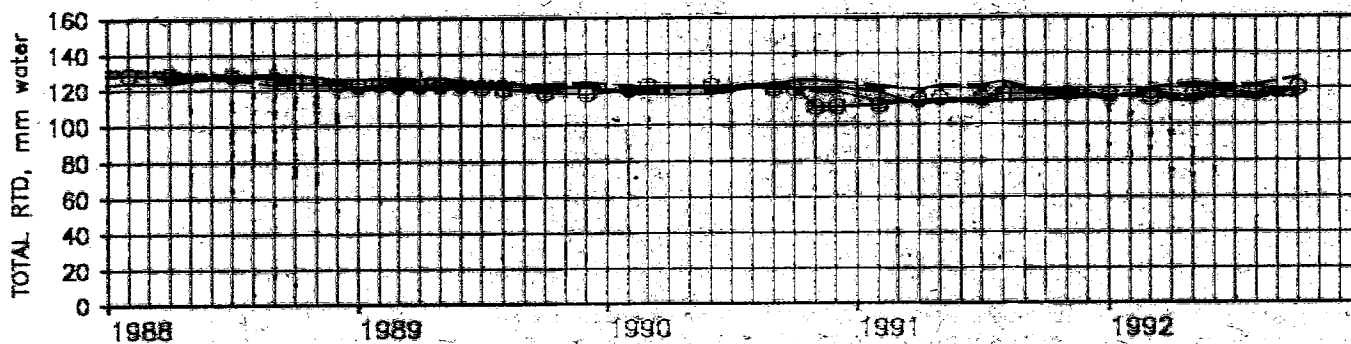
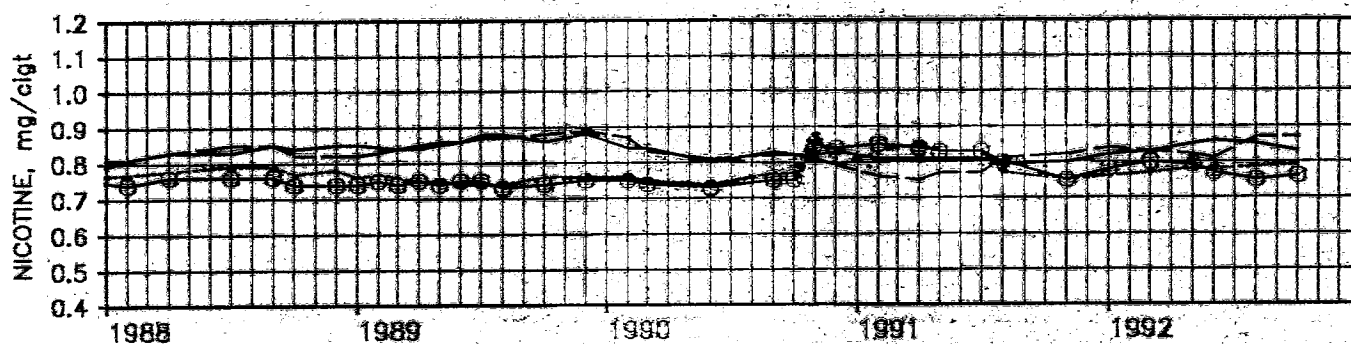
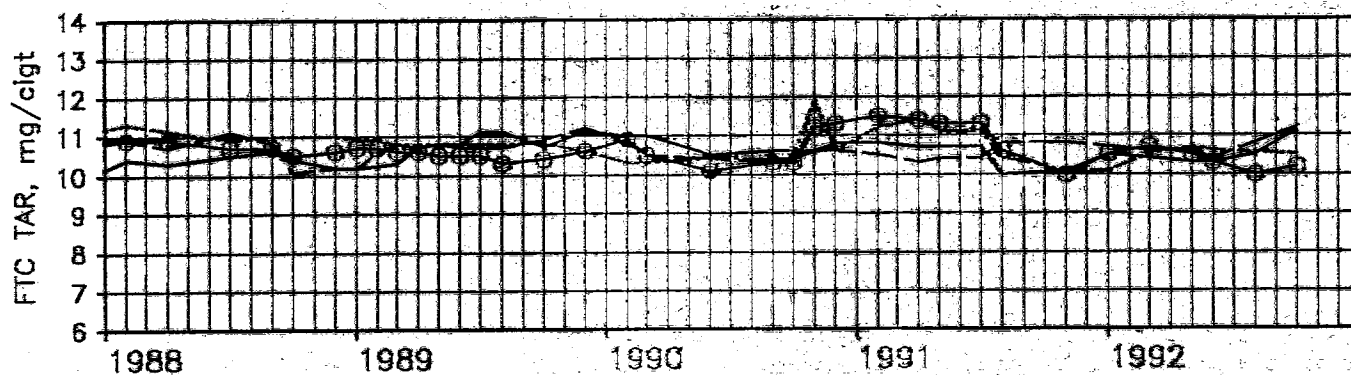
— Merrit
— Vantage
— Kent Golden Lts



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100's: B & H LTS, WINSTON LTS, MARLBORO LTS, CAMEL LTS

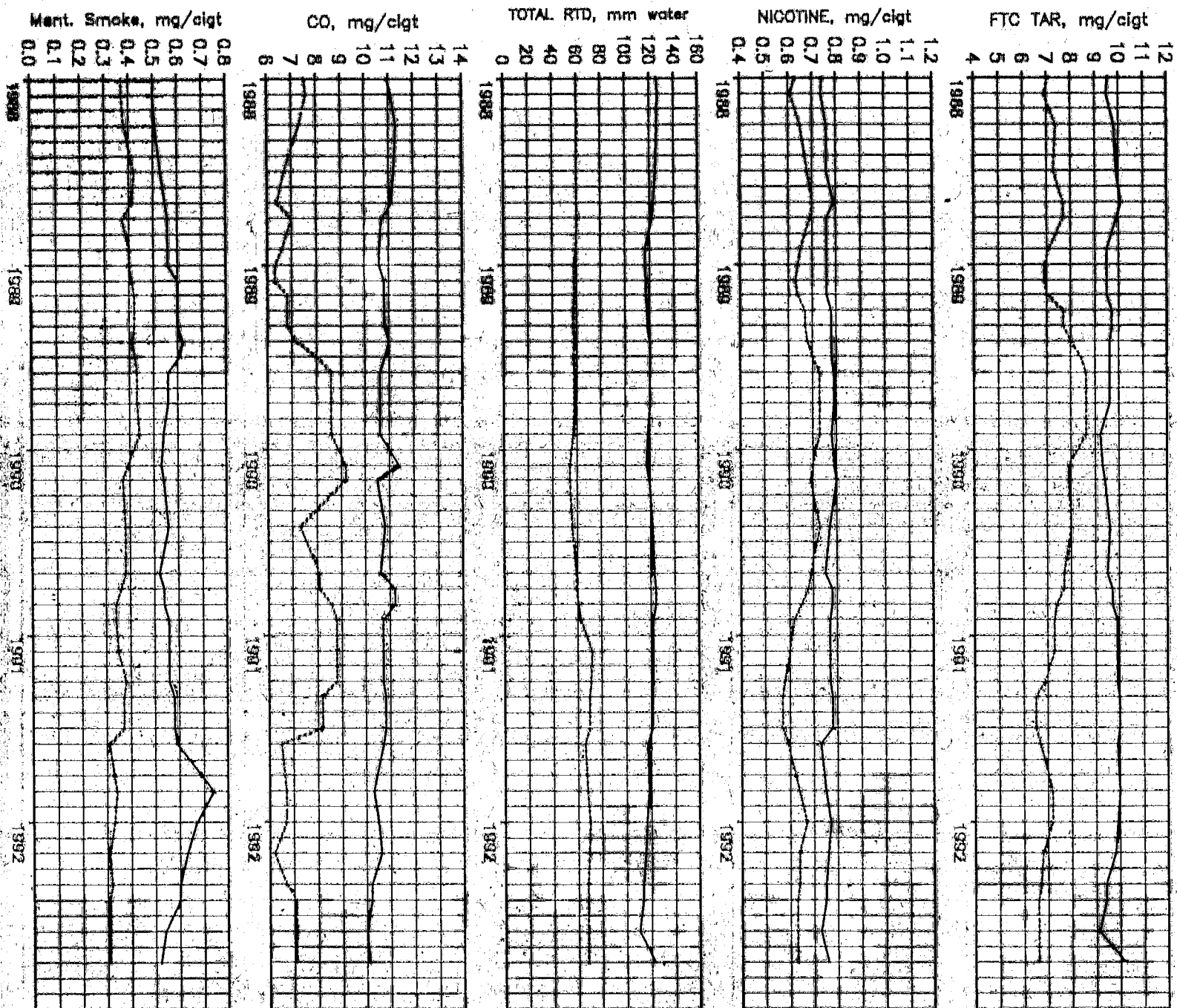
— B & H Lts
— Winston Lts
--- Marlboro Lts
⊙ Camel Lts



2055651167

100's Menthol: MENT, TRUE

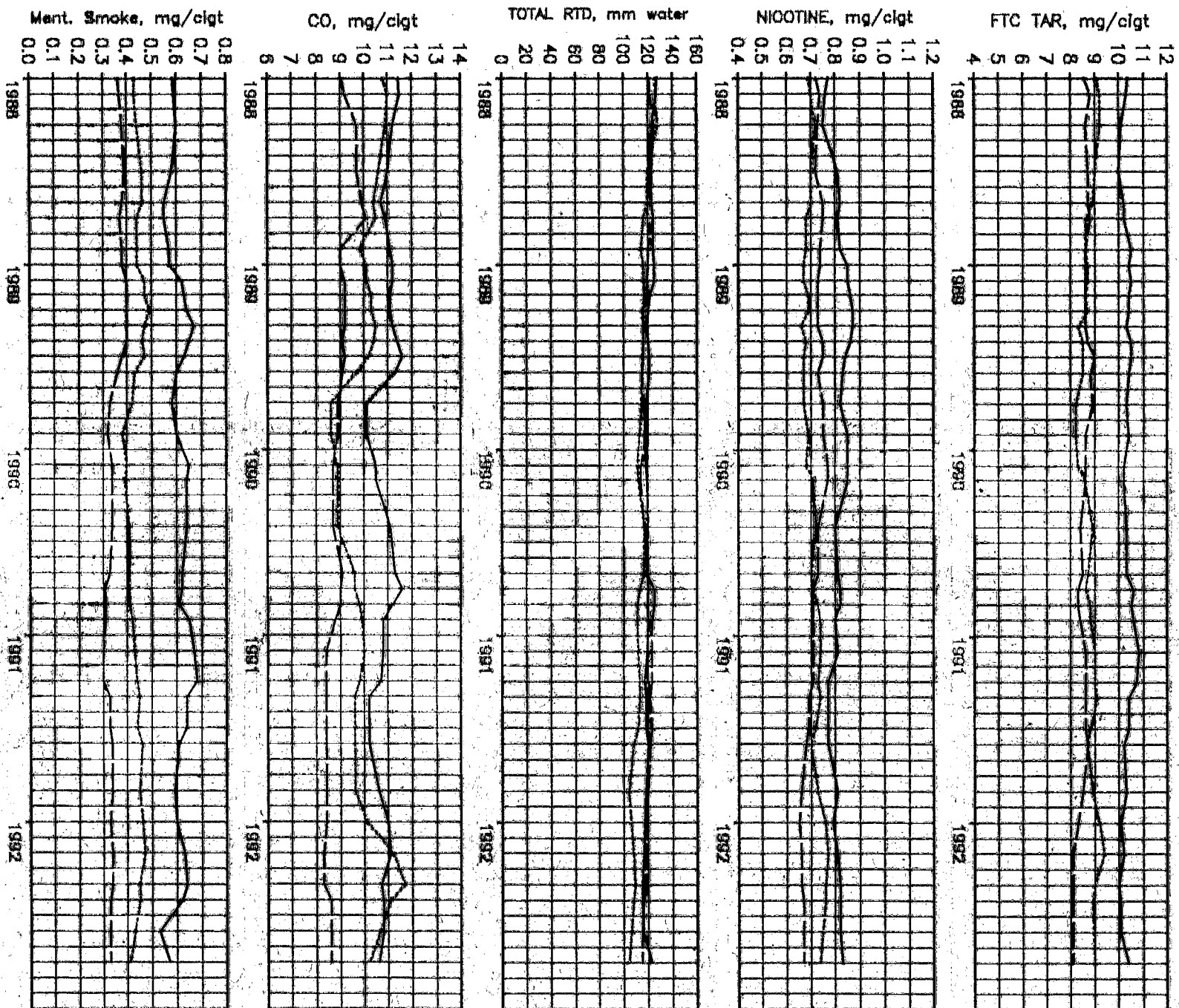
— Ment
— True



2055651168

100's Menthol: BENSON & HEDGES LTD, SALAM LTD, KOOL LTD

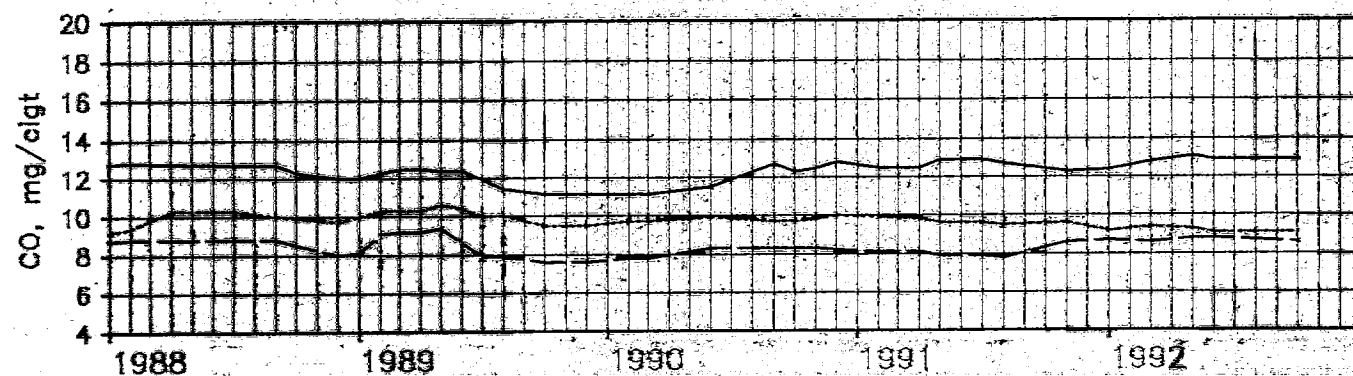
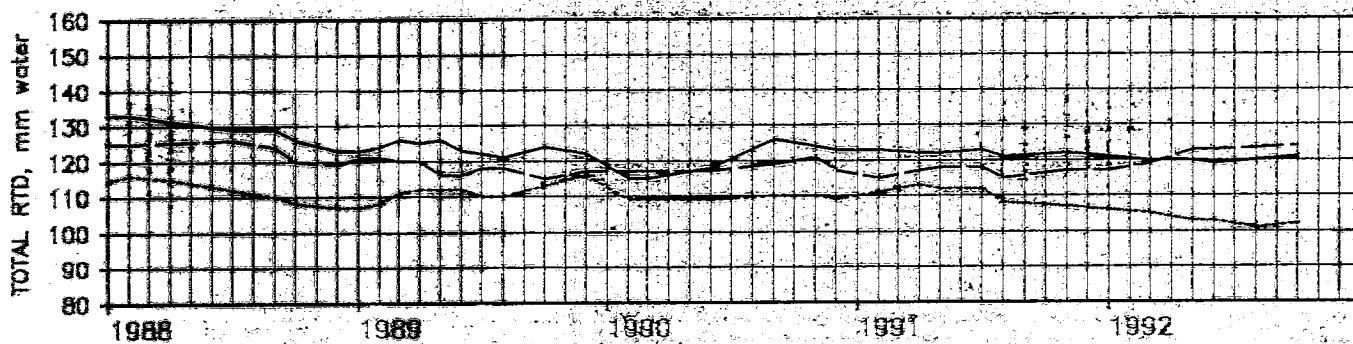
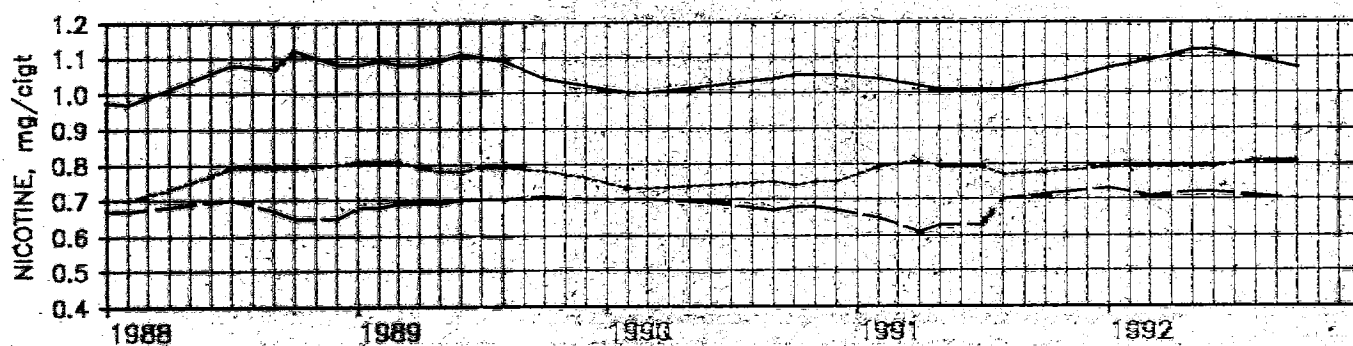
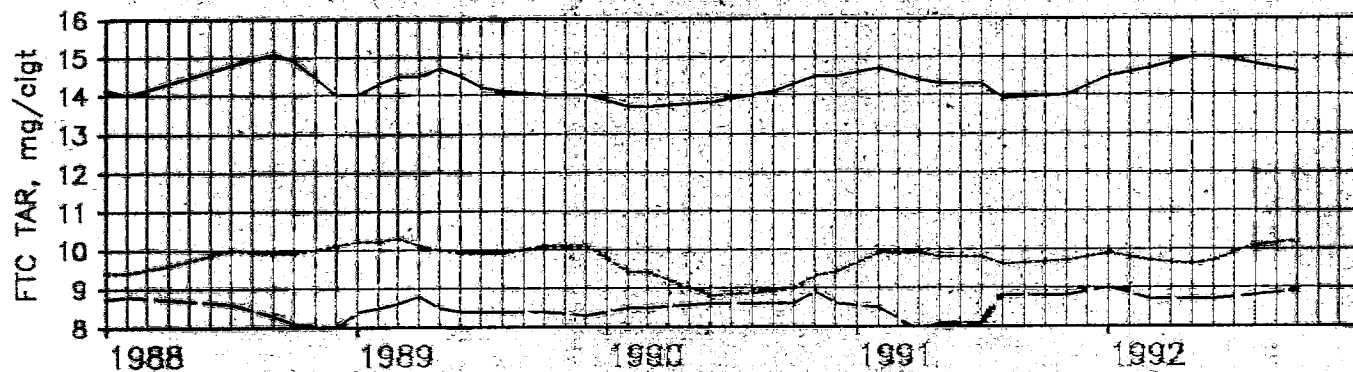
— B & H Ltd
— Salam Ltd
-- Kool Ltd



2055651169

100's Slims: VIRGINIA SLIMS, MORE LTS, VIRGINIA SLIMS LTS

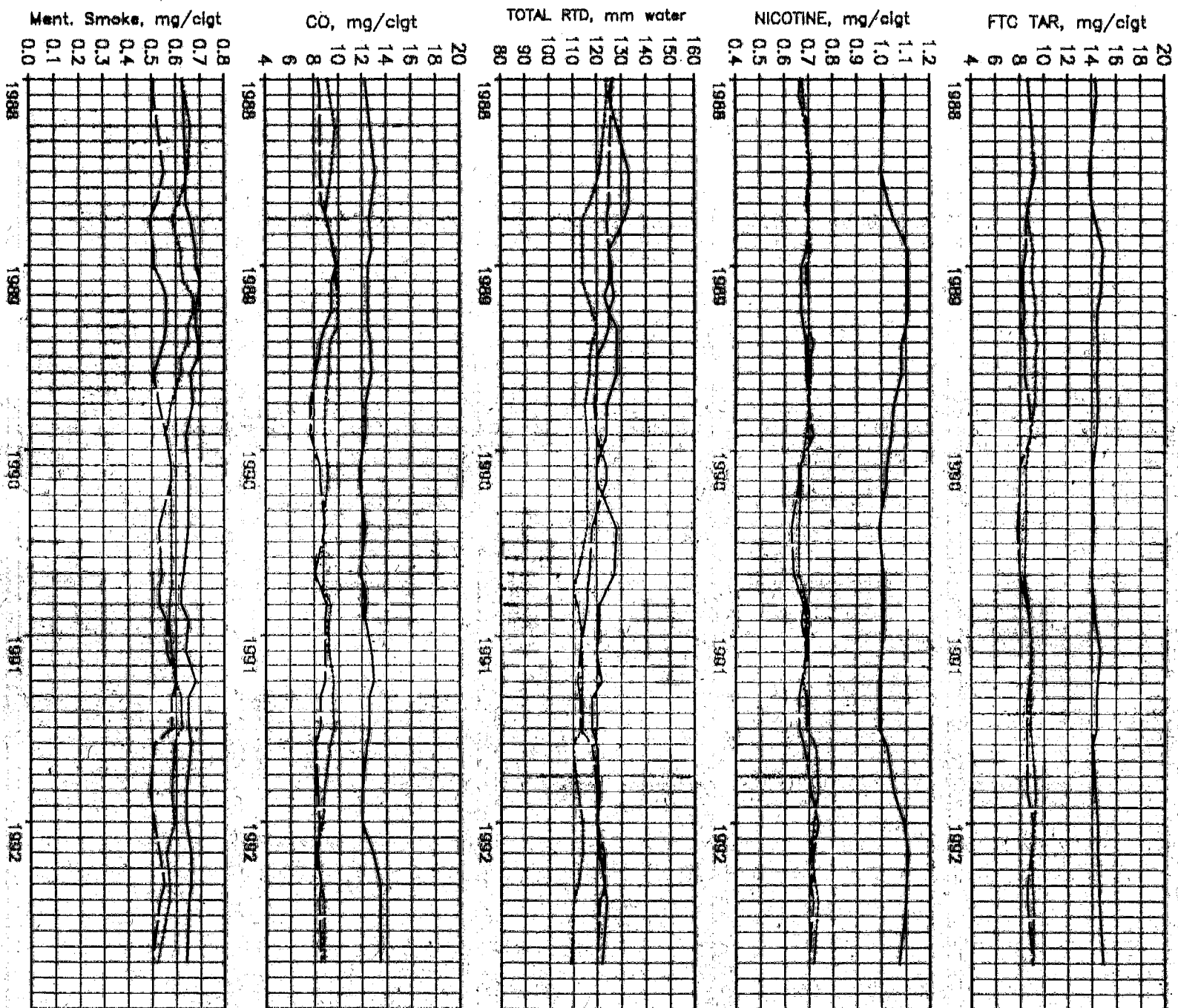
— Va. Slims
 --- More Lts
 - - - Va. Slims Lts



2055651170

100's Slims Menthol: VA SLIMS, SALEM SLIM LTS, VA SLIMS LTS

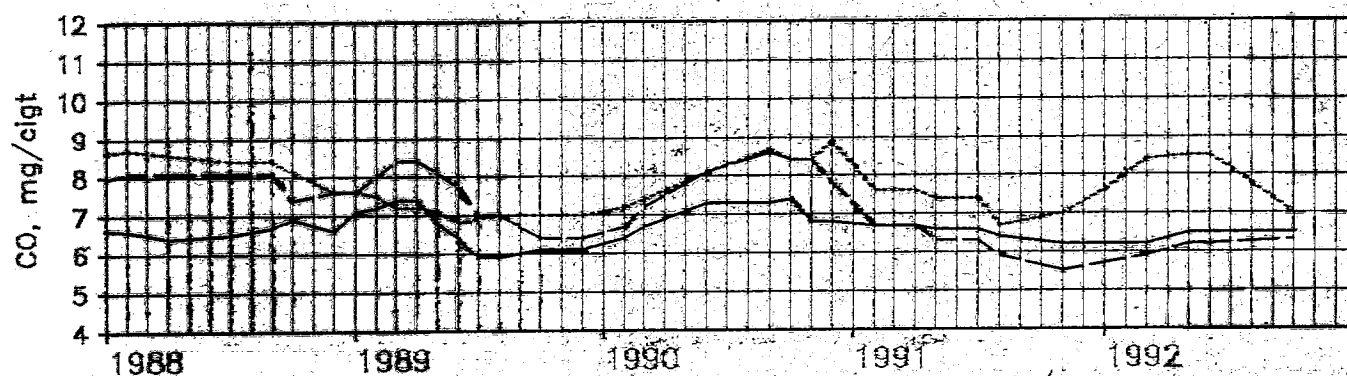
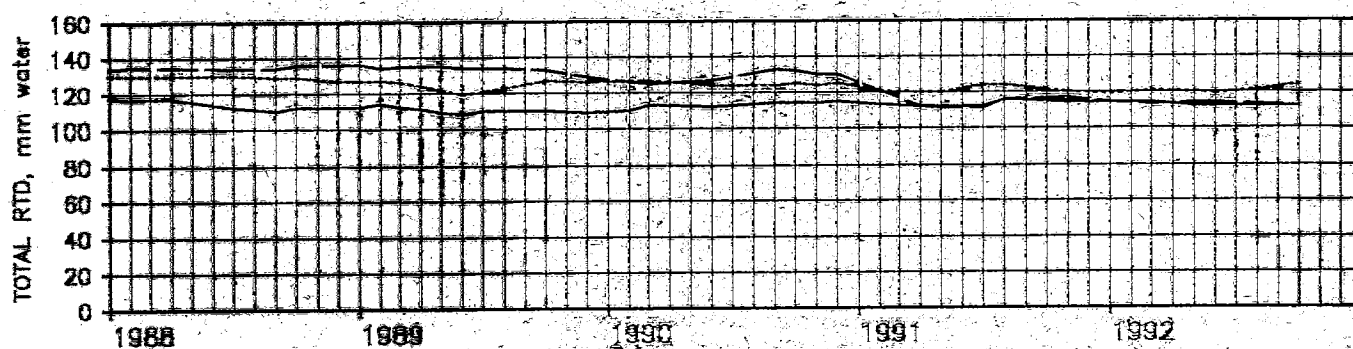
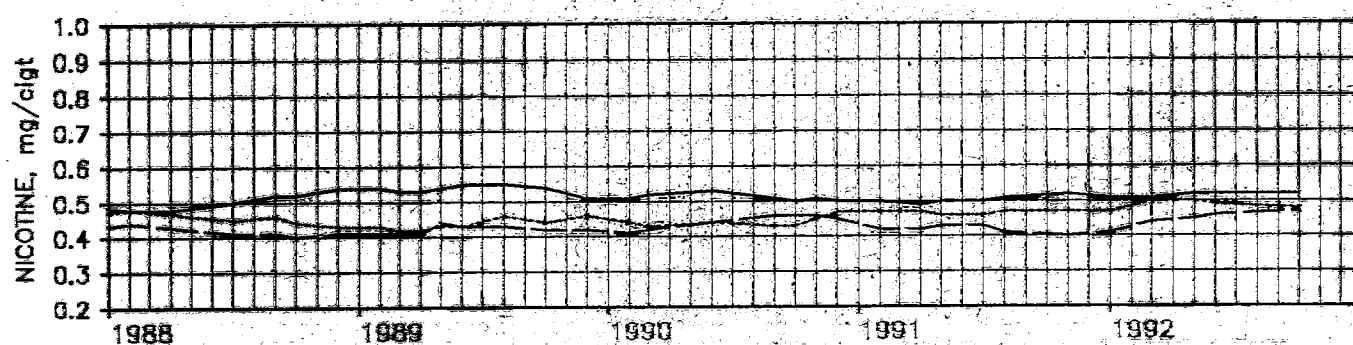
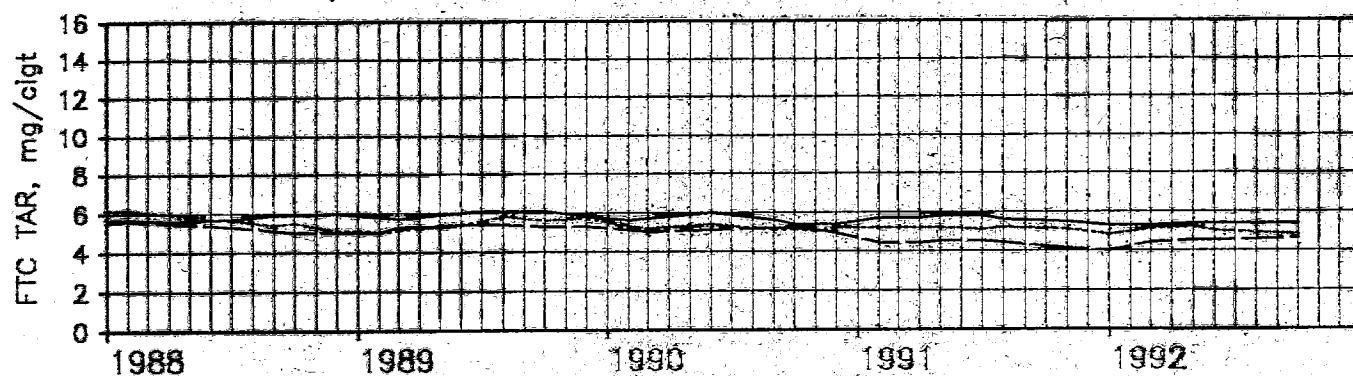
— Va. Slims
— Salem Slim Lts
— Va. Slims Lts



2055651171

100's Ultra Lights: MERIT, VANTAGE, WINSTON

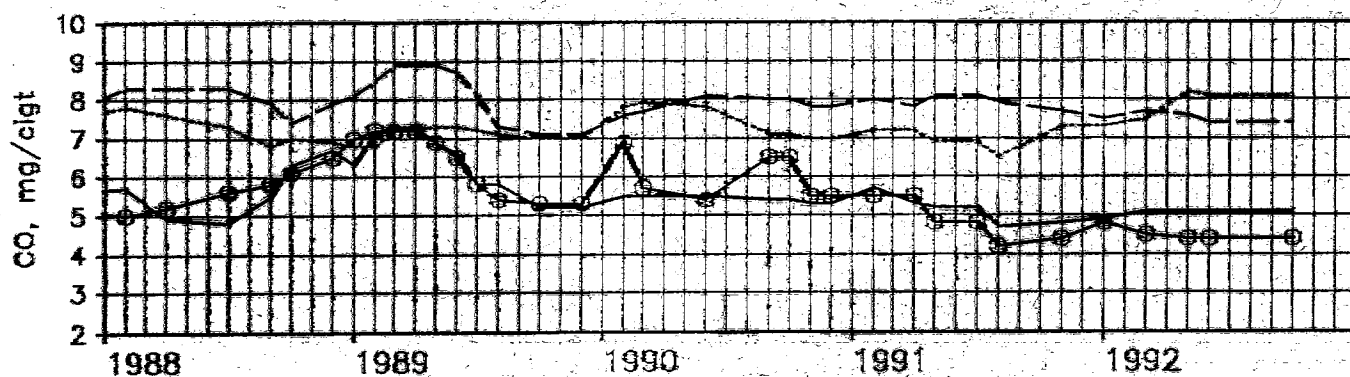
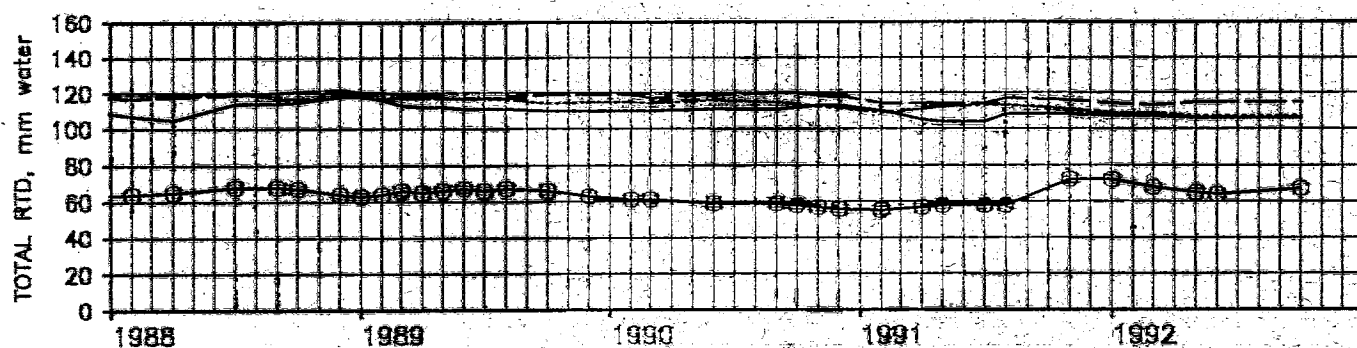
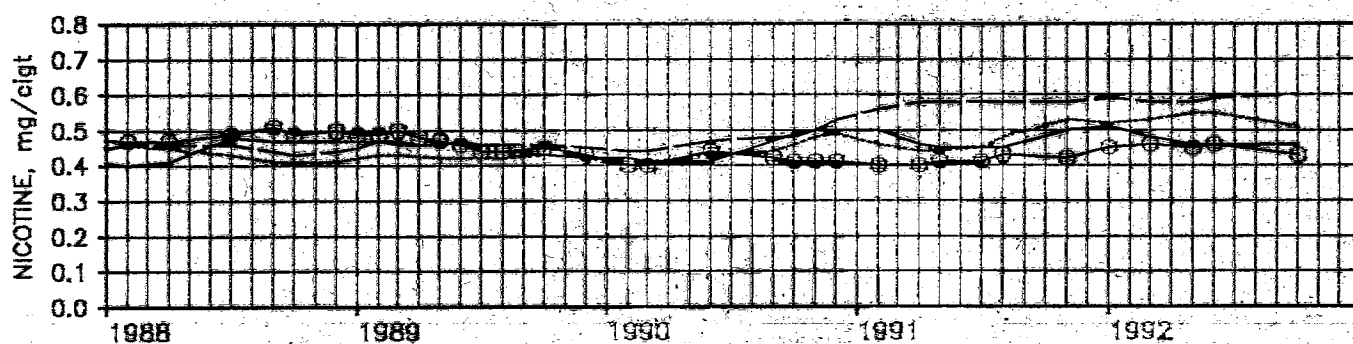
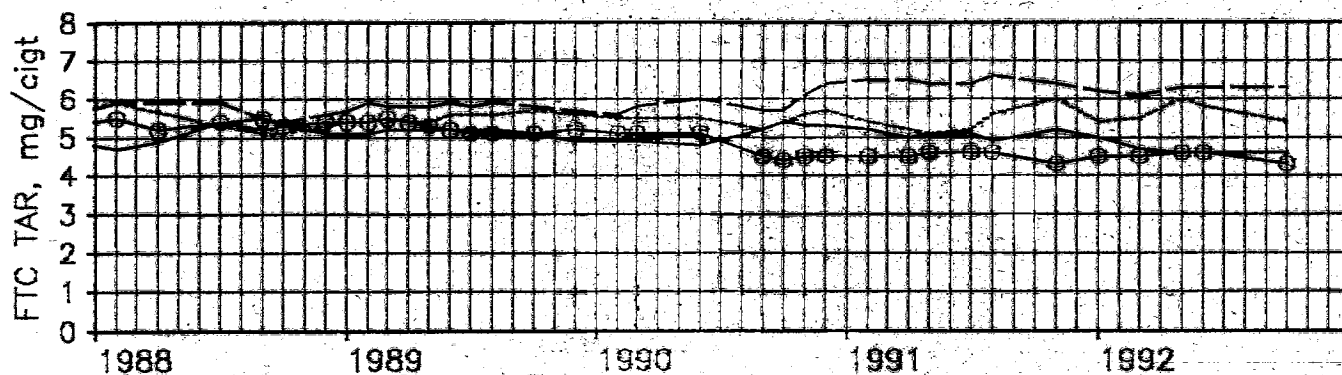
— Merit
— Vantage
— Winston



2055651172

King Ultra Lights: MHRIT, VANTAGE, WINSTON, TRUE

— Merit
 --- Vantage
 - - - Winston
 ⊙ True



2055651173

2055651174